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ORIGINAL ARTICLES.

WHAT IS FEVER, AND HOW IS IT BEST MANAGED.*

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Certainly fever is abnormally high temperature in the animal or human system; but before we speak of abnormal temperature let us consider what normal temperature is, and how it is produced and maintained at a certain standard.

How is animal heat produced? By oxidation, by hydration, and by motion. The nitrogenized food substances are oxidized into urea or uric acid, leaving the body with the urine, and taurocholic and glycocholic acids, leaving the body with the bile. Comparatively little heat is produced thereby. A much greater source of heat is the combination of hydrocarbons with oxygen; the carbon therefrom forming carbonic dioxide (CO_2). This reaction is generally considered the greatest source of heat, but there is a doubt within my mind about that. There has been for a long time a controversy among physiologists whether water was produced in the animal organism; but what should become of the liberated hydrogen when its mate, the carbon, joins with the oxygen? It certainly then and there also, in most part,

joins with oxygen, forming water, and must thereby necessarily produce the same amount of heat as so much hydrogen produces upon combining with oxygen outside of the body. By no other chemical combination is so much heat produced as by the junction of hydrogen and oxygen to form water.

Physiologists now agree that from one to two pounds of water is produced in the human organism in twenty-four hours, which estimate may be still too small; but at that it gives us a great amount of heat.

Heat produced by hydration occurs principally in the stomach and alimentary canal during digestion; but probably also in the blood, in the tissues during assimilation, and also during retrograde metamorphosis. Another source of heat exists in all the other varied chemical changes going on in the body, and lastly by the mechanical friction produced by the circulation of the blood and lymph, and the motions of all organs and extremities. A sensible amount of heat is produced by the action of the glands on the blood; the blood leaving the glands warmer than it was when entering.

*Read before New York State Medical Association, 1894.

Having considered the source of heat we now come to the greatest wonder in nature, that is, the successful regulation of the bodily temperature at one certain standard, and there is no similar standard for anything else in the animal system. Yes, whether we are in a temperature of sixty degrees below zero Fahrenheit near the poles, whether we are in the temperate zone, or in the tropics, with the outside temperature very many degrees warmer than the normal temperature of our blood or our body, our system, while in health, will successfully, though laboriously, and with inconvenience, keep our body at the same standard temperature of about a degree below 100 Fahrenheit.

The maintenance of the bodily temperature in very cold weather is directly explained by the increased ingestion of food, and by the increased assimilation and oxidation of the same, especially the hydro-carbons. See how the Laplander drinks with delight oil in greater quantity than some of us drink water, and it is necessity with him; he has to supply his bodily stove with light burning material of the greatest heat-giving power; and in order to oxidize it well he must force the draught by increased respiration and by increased activity generally.

The other extreme, that of keeping the bodily temperature below that of the surrounding atmosphere, though the system must, in order to live, produce additional heat, is accomplished by keeping down the ingestion of food at a minimum; the digestion and assimilation at a still lower point. Respiration and oxidation are kept at the lowest degree possible. All the general bodily motions are performed with sluggishness and indolence, for which those persons living in hot climates must be pardoned, as increased activity means increased heat. Only one function is performed in excess of all others, that is perspiration that is the function which keeps the outside of our body wet with an almost watery fluid. Evaporation from the surface, by transforming a fluid into a vapor, needs a great deal of heat for its accomplishment, and being in opposition with the body takes the necessary heat from the body. The air in hot climates is generally dry, therefore evapo-

ration goes on very rapidly; were their atmosphere at any time completely saturated, or nearly so, like we have it here very often, human life in the tropics would be impossible; they would all get a "physiological fever." Increased physiology, beyond wide limits generally, but here within very narrow limits, becomes pathology. This, besides an increased evaporation from the lungs by the expired air, and free drinking of cool drinks and the use of cool food substances, comprises all that nature can do to keep down temperature.

In an analogous way as they cool their own body they cool their drinking water in tropic climates. Keeping it in an unglazed earthen jar, where, percolating through the walls of the vessel, and thereby keeping the outside of it constantly wet in a perspiration, as it were, evaporation goes on constantly, cooling the water many degrees. Thus we see how nature accomplishes this great marvel in a very simple way.

So much for normal temperature. Subnormal temperature I shall not consider. This brings us then to hypernormal temperature, that is, fever.

We know that fever, besides the increased temperature, is attended with other variations from the normal standard. If these other variations did not exist, then there could not be increased temperature, as the latter is one of the results of the former. Every fever is due to one of two conditions, either heat production is above par or heat abstraction is below par, or the two conditions are working together. When one compensates for the lack or excess of the other, then still we have no fever.

What are the causes of excessive heat production? We must seek the cause in the nervous system which regulates it. We see throughout nature that ways and means are provided for self-preservation under adverse conditions. This obtains when we become sick, when we become *diseased*, when the nervous system, instead of being *at ease*, becomes *at disease*, through something going wrong in the body. The nervous system then becomes differently affected, *i. e.*, irritated, and naturally reacts differently than under normal conditions. Then there is instituted a peculiar condition, with increased activity of the

heart and lungs, and resulting higher temperature, by which nature tries to correct matters, that is, if the nervous system has not lost its power of control, either temporarily or permanently, by shock. This is called the reaction of the system; in other words, fever.

Thanks to the splendid discoveries of the last few years, we know that most of our diseases are due to foreign living organisms and their products within our body. We further know that such a heat as our body can possibly bear in way of fever is not able to kill off pathologic organisms. If such were the case we should endeavor to secure a sufficiently high temperature to kill them off at once. It is really too bad that this is not so, but unfortunately they live better and propagate better and more rapidly at the body's fever heat. This does not look like self-preservation, and still the organisms are killed off and their products are eliminated during fevers. Is it done by phagocytosis? Is it done by an increased oxidation process? By the micro-organisms themselves becoming oxidized? Or by some other process of which we are ignorant? The fact remains, it is, in most cases, accomplished during fever. If not accomplished, unless the system acquires a tolerance to their existence, death must be the result. It is, as it were, a race between the micro-organisms and the activity of the system.

We all know that fever heat, especially when reaching 105°, 106°, 107°, or 108°, does great harm in the system; yes, the highest degrees of fever kill a patient very promptly. I have never seen a temperature above 108° (I have never seen it as high as 112°) without the controlling nervous system losing its influence and resulting in convulsions or coma, followed by death promptly.

Now what is the *modus operandi* by which high temperature hurts and kills? Let me here relate an experiment. S. S., a young man of twenty, contracted to keep his foot for twenty-four hours in water of 110° Fahrenheit. The temperature of the water did not vary one degree above or below. I had to cut short the experiment, for lo, in six and a half hours his foot was blistered. A number of days later we tried the other foot at a temperature of 108° and here

the temperature did not rise at any time above 109½°. In ten hours that foot was also blistered. The heat only acted on his foot from the outside, while he had cooler blood circulating within to mitigate the effect. How much more harm would the heat have done had his foot been like a sponge with fluid of these temperatures streaming through it.

When we have a fever temperature of 107° the radiators,—the blood vessels—like in a hot-water heating system, must be several degrees warmer, than the tissues heated thereby. How must the nervous system, the finest tissue of our body, suffer, and especially the brain, with its enormous vascular supply. So long as the nervous system performs the function of a "thermostat," so long the temperature of the body will not rise above 107°, or at the most 108°, which seems to be the physical limit at which the body can exist without actually becoming burned or cooked by its own heat. Is it to be wondered at that cases of extreme high temperature are always either in a state of delirium, convulsions, or coma? I suppose you will agree with me, that a fever is in most cases necessary for the system in order to overcome its hostile intruders, like defensive war, the fever excitement of a nation.

The fever is necessary, but the heat thereby produced is not, yes, it does great harm. A slight elevation of temperature affects in the first place the appetite and digestion. The higher temperatures, especially if long continued, hurt the nervous system, and weaken the heart, on which latter organ there is so much dependence during a fever, and the injury is probably by the pernicious effect of the heat upon the cardiac-ganglia. When weakness of the heart has set in, the blood cannot be propelled sufficiently through the capillary system of the skin, to set the sweat glands in action, or to heat the skin; consequently radiation of heat from the surface becomes almost *nil*. The internal temperature must rise, with accumulation of blood in the large blood vessels of the internal organs, interfering with their normal functions. Certainly those cases, where extremities and surface are cold, with a high internal temperature, are the most unpromising; unless the

heart can promptly be roused by stimulants and food, and a prompt reduction of the internal temperature effected, life's chances are extremely small.

We have seen that super-normal-temperature is harmful; yet it is necessarily produced by the acceleration of life's processes, which in turn are necessary to cope successfully with those hostile intruders. Now, what to do with this pernicious by-product, physically unavoidable? The answer to this question is practically, how is fever best managed? Certainly not by hampering the system in its efforts to overcome the trouble, but by encouraging it, and by leading off, and by relieving the system of this harmful by-product, hyperpyrexia, and in that way giving the nervous system a chance, as it were, to let the horse go without the necessity of curbing constantly life's processes, for fear of overheating.

In the taking away heat from the body, we must take hints from Nature herself, how she manages this matter in health. Nature wets the body in health by perspiration, but only those parts of the body which are too warm. Nature lets a person drink much water, cool, if he can get it, if he is not too warm inside. Nature propels the blood to the surface in order to set the sweat glands acting; also, by carrying more heat to the surface greatly increases direct radiation of the same. Therefore the maxim ought to be, never obstruct the access of heat to any part or surface of the body where there is subnormal or only normal warmth; but take it only from where it is in excess, either from the trunk or head, or if these surfaces are only normal or subnormal, and we have at the same time a high temperature in the rectum, let us then give our patient an internal bath of cool water by injection, and from above encourage cool drinking. The water injected, in quantity as much as can well be accommodated, ought to be retained long enough, say ten to thirty minutes, to allow it to get heated to near the temperature of the body. The water should at first be used with any notable chill off, but as it is well borne, the water may be used cooler. The injections are to be repeated, as each case demands, to keep the temperature down, either every two or three

hours, or in extreme cases every half hour.

Heat abstraction from the outside should as much as possible be steady, best by putting only over the super-heated surfaces a wet, thin pack, only a single layer of cheesecloth, or other thin material, constantly kept wet with water; or to insure the effect by something more volatile, as alcohol and water, or vinegar and water. This is certainly better than a cool bath; the patient is not disturbed, heat is only abstracted where necessary, the cloth is only sprinkled from time to time, the temperature of the sprinkling fluid should be warm enough not to awake the patients when sleeping, or to shock him when awake; the abstraction of heat is steady, and can easily be regulated by more or less wetting, or by using more or less volatile fluids; the extremities, if cold, can at the same time be warmed; by allowing a current of air over the surface, or by fanning, the effect can be still further increased.

By keeping thus the temperature down below 102° F., we find that our patient does not lose his appetite, but that appetite and digestion are frequently well maintained; much is taken, much is digested and assimilated, and in this way it is possible for a person to pass through a lengthy fever without losing much, if any, in weight. But in abstracting thus the heat, one is surprised how quickly it is reproduced—how many calories must be abstracted—until the desired end is accomplished, then the fever drops, sometimes slowly, sometimes almost at once, but the natural time period of which ever essential fever it might have been, is very much shortened from what it would have been by allowing the process to go on at full speed. Thus I have now, for several years, treated a great variety of febrile conditions. Certainly I do not discard medication, where we can kill poisonous germs directly; or where we can otherwise aid the system, for instance by favouring the movement of the overheated blood to the surface, or by toning up the heart; as by small doses of quinine, for its general tonic effect, aconite to relax the capillary circulation, or Dover's powder for the same purpose, especially where also pain is a feature,

strophantus, digitalis, strychnia, etc., when the heart—upon which so much depends—needs stimulation. Carbonate of ammonia, however, is the best cardiac stimulant on which we may depend in case of need, may any or all be indicated; but generally diminution of temperature with highest nutrition is the best support to the heart and the system in general. Antipyrine or antifebrine I never use for their antipyretic effects. In fact, I never use an antipyretic remedy. Alcohol I rarely use, and then only in fevers of short duration, where we hope to reach the crisis in a short time, and before the alcohol has, by exhausting the nerve power, does its harm.

As a conclusion, let me sum up in a few words the essence of my paper; Fever is a laudable process, and generally an effort on the part of the system to overcome and eliminate harmful substances, living or dead. Fever is produced by an acceleration of life's processes as regards retrograde metamorphosis. The constructive metamorphosis is, unless hyperpyrexia is kept down, seriously interfered with. That we should not hamper the system in its effort, but support it, and simply abstract that vicious, but unavoidable, by-product, hyperpyrexia; at least try to keep it down under that point where it will do harm to the tissues, and the nervous system in particular.

THE TREATMENT OF METRITIS AND ENDOMETRITIS.

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It ought not be a matter of surprise that some of the former modes of treating uterine inflammation were occasionally productive of more harm than good. The womb being easily reached, seen and treated, is sometimes over-treated, and doubtless, now and then, maltreated. Its tolerance of injury will explain the escape of many women from the grave consequences of blind groping and reckless interference in the earlier days of gynecology, when the merits of cleanliness were unknown. Unskillful methods of conducting examinations with unclean instruments; intra-uterine injections, without preliminary dilatation of cervix; and the indiscriminate employment of powerful caustics not only perpetuated the uterine disease, but, it can scarcely be doubted, at times gave rise to salpingitis, peritonitis and pelvic abscess.

Of late years, material advance has been made in the management of chronic inflammatory affections of the uterus, and we do not now view them in the same hopeless light as formerly. The most decided steps forward are antiseptics and drainage. The complete cleansing and disinfection of the uterine

cavity, and provision for the free exit of inflammatory or septic products, are procedures now almost universally employed in discharging of infected cavities, or sinuses elsewhere in the organism. But widely divergent views are held as to the best means of accomplishing those ends. Whilst the majority of gynecologists advocate dilatation of the uterine canal, the use of the curette and the employment of drainage, they resort to different methods of accomplishing dilatation, are not agreed respecting the comparative merits of the dull and sharp curette, and drainage in various ways is commended by different operators, each seeming to be satisfied with his own peculiar plan. The dogmatical adoption of any mode in its entirety, without discrimination, will not secure the best general results in practice. Methods must be varied according to the requirements of individual cases.

Acute catarrhal endometritis yields, as a rule, promptly to simple derivative lines of treatment. Rest in bed, copious hot (115° F.) vaginal douches, warm sitz baths with introduction, while in the bath, of a small wire speculum which

allows contact of water with the cervix, scarification of the cervix, and mild purgatives usually suffice for the cure when there is no great change in the mucous membrane. But when the milder course has been faithfully carried out without satisfactory result, or where menorrhagia or metrorrhagia is the urgent symptom, recourse should be had to dilatation, curettement, cauterization, irrigation and drainage. "Curetting is the rational treatment for catarrhal endometritis when simple methods have failed. By waiting too long, alterations in the mucous membrane will take place, the parenchyma of the uterus is exposed to sclerotic changes and follicular degeneration, and the possible extension of the inflammation to the tubes, so frequent in old cases of catarrhal metritis." (Pozzi).

The cure of chronic endometritis and metritis, of whatever type (granular, fungous, or polypoid), demands the invasion of the interior of the uterus. But the readiest, safest and most effective mode of attack has recently given rise to much discussion and difference of opinion. I invite attention to a line of procedure which is, with trifling modification, the plan inaugurated and warmly advocated by Prof. W. M. Polk. After a somewhat extensive experience of the various types and stages of uterine inflammation, extending through a period of two years, the method has been so satisfactory to me that I venture, with full confidence in its merits, to recommend it. The plan consists of operative interference, supplemented by intra-uterine medication when the latter is indicated. The attainment of satisfactory results demands more than skillful performance of the operation; the safety of the patient will depend upon the thoroughness with which aseptic and antiseptic precautions have been carried out.

A general warm bath with soap, flushing the vagina with hot water, disinfection of pudendum and mons veneris with a solution of mercuric bichloride (1:1000), and clean gown are essential preliminaries. On the table, general anesthesia is induced and the vagina carefully cleansed and disinfected with soft soap and hot water and bichloride solution. In the left lateral position,

with the use of the Sim's speculum, the uterus being steadied by a tenaculum and, when practicable, drawn down, the cervical canal is freely dilated by some pattern of steel dilators (I prefer Wylie's), the curette* is directed to the fundus of the uterus and with firm, steady pressure the scraping is done by bringing it first over the anterior face, then the posterior, the fundus, the angles and the sides in turn, until all the soft, spongy masses are removed. Finally the cervical canal is cleared of all diseased tissue. The uterine cavity is sponged clean by means of applicators wrapped with absorbent cotton squeezed out of hot bichloride solution, and through a Polk's cervical speculum which has been insinuated into the os internum,† an applicator armed with cotton which has been dipped in carbolic acid, is passed to the fundus and turned about so that the surfaces are everywhere thoroughly touched. The vagina is then liberally mopped with bichloride solution, and a double strip of iodoform gauze, about an inch in width and three feet long, is carried by means of a long probe into the uterine cavity, packing it section by section firmly in place until the entire uterus is filled down to the internal os, when the end of the strip is brought down along the posterior wall of the vagina, and placed just within the posterior commissure to facilitate removal in the event of distressing uterine colic. The operation is completed by loosely packing the vagina with iodoform gauze, sponging clean the soiled thighs and back, and applying an antiseptic pad over the vulva.

The subsequent treatment comprises rest in bed, fluid food (mainly milk) during the first three days, a saline cathartic on the day following the operation, periodic evacuation of the bladder (by means of a catheter, if required), hot fomentations over the hypogastrium, and suppository of one grain of extract of opium, if pain is harassing. The gauze is removed on the fourth day (unless earlier demanded on account of per-

* I generally employ a sharp curette. By sharp (in contradistinction to the flexible dull instrument of Thomas) I mean that the edges are thin, but not cutting like a keen knife blade.

† This precaution is necessary, as without some such device the applicator will reach the uterine cavity after most of the medicament has been squeezed out in its passage through the cervix.

sistent uterine tenesmus) and a copious hot antiseptic vaginal douche is given. The latter is repeated twice daily to the end of a week, after which it is continued once a day for a week longer. The patient is allowed (barring co-existing complications) to get up on the seventh day, and usually strength speedily improves and recovery is rapid.

A second packing of the uterus has been found necessary only in cases of chronic metritis, endometritis characterized by protracted chronicity, or complicated by disease of the tubes; and it has been accomplished at the end of a week without anesthesia and with but trifling discomfort to the patient.

But three cases have come under my care requiring the use of the curette a second time. One of them being chronic metritis with salpingitis; the other two, gonorrheal endometritis with implication of the tubes and pelvic peritoneum. The second operation was done one month subsequent to the first.

In some exceptional instances, in which uterine discharge persisted, the intra-uterine application, on two or three occasions, at intervals of five or six days, of equal parts of tincture of iodine and carbolic acid was proven sufficient for the completion of the cure.

The operation is unattended by shock, and pain is rarely an annoying sequence. In some instances slight elevation of temperature (never exceeding 100° F.) occurs immediately after the operation, but it subsides after the second day and remains normal. Serous oozing takes place in every case. This continues with more or less profuseness during the first four or five days. The procedure has never been followed by inflammatory change in the pelvic tissues discoverable by careful physical examination. On the contrary, pre-existing inflammatory deposits have either diminished or disappeared. As a rule patients are discharged at the end of a month.

The modifying effect of this treatment of the interior of the uterus upon diseased tubes has been forcibly stated by Prof. Polk and others, and attested by examples within my personal experience, that were too well defined to admit of doubt. The removal of the source of infection cuts off the supply of morbid material from the affected or-

gans, thus restraining diseased action within them, and checking the leakage of putrilage into the peritoneal cavity. It is also probable that in a certain proportion of cases, drainage of accumulations within the tubes is achieved by the displacement of masses obstructing their uterine orifices. If uterine diseases were cured before resorting to laparotomy for the removal of a diseased tube, the latter operation might occasionally be obviated, and it would remove the necessity of sacrificing the unaffected organ as a matter of routine, as is the rule now to prevent the danger of its subsequent implication.

I have been impressed by the frequent association of displacements of the uterus with chronic inflammatory conditions of that organ; and particularly by the fact that a large per cent. of flexions are rectified or improved by the mode of treatment just described. The exceptions seeming to be those cases in which the uterine disease was not cured, or of long standing where probably the tissues of the uterine walls at the point of flexion (on the side to which the organ is bent) had undergone compression and attenuation. Improvement of the circulation, innervation and nutrition of the uterus would appear to furnish a solution of the result.

Beside the clinical evidence in favor of this operative plan, its rationale is supported by common sense, as well as sound surgical principles. Dilatation of the uterine canal insures not only better drainage, but is essential, as a rule, to effectual use of the curette. In some cases of subinvolution it is not required, because the os internum is already abnormally patulous. The curette accomplishes in a few moments what is doubtful of achievement by any other means, even after months of intra-uterine medication and "change of climate." It removes tissues infected by germs, and changed by inflammatory action, and promotes the substitution for them of a "regenerated mucous membrane." The dull curette is to be preferred after labor or recent abortion; the uterine walls being soft and thin, perforation may be produced by very slight force. Iodoform gauze packing has for its object both the drainage and antiseptics of the uterine cavity. It has, also, a

special alterative effect upon the diseased endometrium, which is, to a certain extent, curative.

Endometritis and vaginitis of gonorrheal origin, merit special mention on account of the serious consequences that frequently follow their occurrence. They depend upon each other, and have to be treated together in the most vigorous manner, by curetting, followed by copious intra-uterine irrigation with a solution of corrosive sublimate (1:1000), scrupulous cleanliness and energetic antiseptics of the vagina by daily douches.

The most favorable time for operating, when conditions admit of election, is in the week immediately succeeding menstruation; the only contra-indication, and that of questionable weight, being the presence of concomitant acute inflammation within the pelvis, outside of the uterus.

In every act in which the uterine cavity is invaded, gentleness, cleanliness and faithful attention to details, are of paramount importance.

Should laceration of the cervix and ectropion exist, its repair by trachelorrhaphy will constitute an indispensable step in the line of treatment.

Disturbance of neighboring organs, (bladder and rectum), and of those at a distance, (digestive canal, nerves, etc.), demand earnest attention. It is not unusual for organic complications to persist and induce perplexing symptoms after the focal disease has disappeared. There is no function upon which uterine disease reflects more constantly than on digestion; and the stomach frequently bears the brunt of such action. What, at the commencement, was a sympathetic derangement, may become, in time, an inveterate disorder, requiring for its eradication the most consummate skill. The pain which disturbs rest and prevents exercise, the dyspepsia which restricts the dietary and impairs nutrition, the irritable nervous system which depresses and disheartens, all combine to disturb the balance between wear and repair and deteriorate the general health. For their relief, the ends to be secured are freedom from pain, rest of body and mind, sleep, an equable circulation and nutrition.

A brief reference to the cases that have been treated, their complications and results will form an appropriate appendix to this discussion of uterine inflammation. There have been treated during the past two years, in the gynecological service of the John Sealy Hospital, fifty-six cases of endometritis and metritis. Of that number nine were uncomplicated, seven being cured and two deserting the hospital before completion of treatment. The others were complicated as follows: Twelve with salpingitis—endometritis cured in all, salpingitis cured in five, and improved in seven. Eight with salpingitis and pelvic peritonitis—endometritis cured in all; complications cured in four cases, improved in four. One with pelvic abscess—drainage through vagina, recovery. One with cystic ovaries and extensive adhesions—laparotomy, death on the eleventh day from an exhausting diarrhoea. Seventeen were lacerated and eroded cervixes—trachelorrhaphy in each case, all recovered. Seventeen with flexions—thirteen ante, four retro; nine of the former and two of the latter cured, remaining six improved (two of the subjects of ante flexion now pregnant). Five with retroversion—endometritis cured, deviation rectified by use of pessaries. Four with stenosis of os, one of which was associated with vaginismus—three cured, one (with vaginismus) not improved and is now in a lunatic asylum. Eleven with menorrhagia, nine with metrorrhagia, all cured. Thirteen with hemorrhoids and fissure of anus. Seven with hemorrhoids without fissure. Five with fissure without hemorrhoids. All cured. Two with stricture of rectum and rectovaginal fistulæ—appropriate operations and recovery in both instances. Twelve with cystitis, all cured. Thirty-four with gastric disturbance, many of these persisted after the cure of the uterine disease. Three cases with lacerated perineum—perineorrhaphy in each case, all cured. The causes which gave rise to the diseases in the cases enumerated were, parturition in twenty-two, abortion in nineteen, gonorrhoea in six, stenosis of os in four, chronic constipation in five.

THE DIAGNOSIS AND TREATMENT OF PLEURISY.*

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If it were true that the symptom of pleurisy were identical in all cases, it would be only necessary to memorise the summary contained in systematic treatises on the subject; but as we know this is far from being the case, since the several circumstances contained in idiosyncrasy and the varying power of the causes of this affection, exert such a potent influence in regulating their manifestations in the human frame.

Not a few have been induced by this perplexity to look for some symptom which of itself may determine the nature of the malady and called "pathognomonic." Some of the most skilled have fallen into error in the vain effort to attain such simple indications.

By auscultation and percussion we are enabled to reach evidences that appertain to diseased action in a more direct way than by observing evidences which are occasioned indirectly through disturbed function. From acoustic signs the nature of pathological changes is most largely deduced. In the case of a thickened pleura the relative density of the parts is discerned by percussion; by auscultation we learn that the acoustic properties of the cavity of the pleura are changed by disease, but the causes of these phenomena we must look for elsewhere than in the phenomena themselves.

Crepitation has been spoken of as pathognomonic of pneumonia, but when we consider how often it is that other causes produce the same effect, or so nearly like it as to be almost impossible of being distinguished from it, we cannot fail to see how easy it is to mistake sounds caused by varied conditions affecting structures outside of the lung itself.

With the remarkable similarity of sound between the crepitation of pneumonia and that superinduced by the fine friction of pleuritis we are all familiar, yet after careful auscultation the practised ear will readily discern the relative

distance of the sound from the surface, which will so greatly help to clear up the diagnosis. There is a sharpness and clearness, as well as nearness, imparted to the ear by the pleuritic friction sound, as contrasted with the more distant crepitation of pneumonia, that renders differentiation ordinarily not a very difficult undertaking.

Usually pleurisy sets in with a pretty smart chill, followed by fever and pain in the side—the "stitch" of the old authors. These symptoms apply more particularly to acute pleurisy; in the sub-acute types the attack comes on more insidiously, and is the form of pleurisy which we more frequently encounter at the present day. The sharp pain is not then so characteristic, neither is the chill nor the fever. There is, however, more constantly observed a sense of general languor and debility, also a sense of heaviness about the chest, which restricts respiratory effort, and associated with a dread on the part of the patient to take a deep breath or to attempt to cough—all of which constitute symptoms so commonly characteristic as to be regarded almost pathognomonic. In addition there is the peculiar movement of the *alae nasi*, with hurried, shallow breathing, which are also present in peritonitis, though manifesting shades of difference easily discernible.

Auscultation reveals in pleurisy a breath sound more or less suppressed or jerky, occasioned by inability to take a full and steady inspiration through fear of pain; while the expiration is harsh and prolonged. Over the actual seat of inflammation the vocal fremitus is exaggerated at an early period, and friction may also be detected at an early stage.

I am in the habit of relying upon forced expiration quickly performed, as in the act of extinguishing the flame of a candle, for the purpose of intensifying impaired tone of respiration, which would otherwise escape notice in an ordinary examination. I have thought

*Read before New York Association, 1894.

that by a quick, forced expiratory effort any defect of respiratory function, however slight, could thus be brought into notice, and at the same time an estimate of the degree of pulmonary action would be facilitated.

When the diaphragmatic portion of the pleura is attacked, symptoms referable to the digestive organs become prominent, and likewise when the lesion is circumjacent to the pericardium, disturbance of function relating to the heart will arrest attention.†

It is certain that if the knowledge of the relation which disturbed function of these remote organs bears to symptoms of pleurisy could be sufficiently appreciated, error in diagnosis would less frequently occur.

The face in pleurisy manifests a peculiar apprehensive expression, which, though difficult to define, is nevertheless full of clinical significance.

Palpation, percussion, and auscultation are properly regarded as the three great factors in diagnosis, though I have not placed them in the order of their relative importance. By the first it is possible to detect friction, expansion of the chest, and, when extensive effusion has occurred, to appreciate absence of vocal thrill, obtain fluctuation as well as information of levelling of the intercostal spaces. It is well to bear in mind that ronchal thrill may simulate pleural friction, which can only be discriminated by auscultation; then additionally, that loss of vocal thrill, as pointed out by Reynaud, may result equally from gaseous, as well as fluid effusion. Relative modification of sound is ascertained by percussion, as slight or extensive effusion exists or the pleural membrane is thickened, but the same result is noted sometimes in either of the latter two conditions.

While extensive consolidation of the lung may rival effusion, I do not think that its degree of density would be as likely, as in the latter case, to obscure respiration so completely that the ear of an expert examiner would fail to discover at least some faint respiratory sound over a very limited area, especially if the patient is directed to execute the quick expiratory efforts to which I have already referred.

Piorry has likened a peculiar quivering sensation produced by percussion when the chest is distended with serous effusion, to a condition fulfilled by most hydated cysts, and has given to it the name of "hydated thrill," a term which is very expressive of the state described.

By far the most reliable evidence, however, in all cases, is to be found in clean and neat auscultation, which is possible to be cultivated to the highest degree of perfection.

Soon after pleuritic invasion, friction may be heard and percussion resonance is either modified or dullness may be revealed.

The disease may not progress to the point of effusion, but in some cases, associated with cachexia, a copious effusion of lymph takes place without serum, followed by a dusky red countenance, enforced brilliancy of the eye, shock to the vaso-motor system, resulting in hyperidrosis with diminution of urine, evidencing marked deficiency of chlorides; all of which served to denote that the inflammatory fever tends to a fatal issue. In these cases, friction sound diffused over a large area, is both pronounced and persistent; resembling very closely the crepitation of extensive pneumonia of low grade. Nevertheless, some cases in the early stage are marked with such obscure evidences of invasion, and so little disturbance of either the general health or the function of respiration, that no indications whatever appear to point to the mischief that is going on in the pleura, until large serous effusion creates a sudden embarrassment of the breathing. At this stage the diagnosis is facilitated by progressive dyspnoea, a sense of painful heaviness of the chest; an erect posture with an inclination to the affected side, attended with a more or less anxious and suffused facial expression.

I have observed that some patients will manifest more sensitiveness to manipulation of the affected side, which is more marked, however, when the effusion is purulent. Percussion is naturally dull, its nature being very characteristic and best described as dead, inelastic, and resistant. The respiration, at the base, is absent, while higher up it is bronchial, with expiration prolonged. In children, however, tubular breathing

†Trans. of N. Y. State Association, 1893, p. 103.

is sometimes heard through fluid at the base, and when this is noted, it renders a diagnosis of effusion without the aid afforded by the exploring needle, not an easy undertaking.

Aegophony may be heard about the lower angle of the scapula where also metallic tinkling is discerned, but these sounds are less apt to be produced when the effusion is so copious as to occupy the full capacity of the pleural cavity.

I do not attribute much importance to cardiac displacement as an aid to diagnosis except when the effusion is abundant and occupies the left side, as the same condition may be occasioned by mere plastic adhesion, therefore it does not constitute a particular feature of serous or purulent effusion.

The differentiation between pericardial friction and pleural friction, referred to in a previous paper,* depends mainly on its difference of rhythm; and, as so graphically explained by Walshe, upon "the limitation of the sound to either edge, generally the left of the cardiac region; fixity in one or more particular spots; cessation complete, or, what is more common, occasional, with certain beats of the heart, when the breath is held after expiration; and marked unsteadiness in the intensity and quality of the friction, which is heard to one side and not in front of the heart." All these circumstances argue in favor of friction of cardiac rhythm being of pleural rather than pericardial origin. Furthermore, change of friction into creaking is more common in the pleural, than in the pericardium, a circumstance which affords, sometimes, a good point of diagnosis.

Cough, when present, is ordinarily dry, harsh, and ineffective, though occasionally some mucoid expectoration, which is brought up with difficulty, may be observed.

An interesting, as well as important occurrence in pleurisy with adhesion, is a constant desire to clear the throat. Without throat lesion, this is a peculiar symptom, and I believe I was the first who ever called attention to it, in a paper read before this association* a year ago.

I have noted that the character of the effort to clear the throat, affords a

very good indication of the locality of the adhesion.

A peculiar "cracked pot" sound is sometimes heard at the apex when the lung is pushed up by an effusion of serum occupying the entire side of the chest, which, being due solely to the condensation produced by the pressure of the fluid below, must not be confounded with the similar sound due to a cavity at the same site in the lung. Some authors refer to the presence of this tympanitic resonance as a condition very likely to mislead in diagnosis; but I think the knowledge of this circumstance will make an examiner look for further corroboration in either instance before a final conclusion is reached.

The relation of dullness and absence of breathing about the chest to change of posture, affords strong confirmatory evidence of effusion. Again, it is safe to conclude that fluid is in the chest, if a high pitched resonance is detected below the clavicle; though in rare instances this symptom is not present.

When adhesions bind down the lung, and prevent observation of the alteration of breathing by change of posture, the exploring needle may properly be used to clear up any possible doubt. The fear of evil consequences from exploratory puncture, expressed by some, is not well founded, provided due care is exercised in the selection of the site for puncture, with dexterity in its performance, and every antiseptic precaution is assiduously followed. It is my habit to push the integument up slightly, before making the puncture, so that after withdrawing the needle, the layers of tissue readjust themselves in valvular form, thus effectually preventing entrance of air or infiltration from the oozing out of fluid. A thin wad of absorbent cotton moistened with a weak carbolic acid or bichloride solution, covered with oil silk, is then applied over the punctured spot, and held in place by two or more narrow strips of adhesive plaster.

Exploration is often performed with an ordinary hypodermic needle, which is unfit for the purpose, in my opinion, and accounts in many instances for failure to verify the presence of fluid. In the first place, it is not sufficiently long to enter the pleural cavity in mus-

*Trans. New York State Association, 1893, p. 104.

cular subjects, or to penetrate the pleura, when much lymph exudation coats the pleural membrane; secondly, the calibre is too fine, except in simple serous effusion, to permit of the withdrawal of any fluid through it. A needle especially designed for the purpose should be selected, having a calibre of at least one quarter to one half millimeter in diameter, and two or more inches in length.

Pleurodynia is an affection which may be confounded with acute and sub-acute pleurisy in the "dry period," but the pain of the former condition is rather of the nature of a catch to the inspiration, than the sharp, darting, and more durable pain of pleurisy. An hypodermic of morphia, with atropia, when there is any doubt, will promptly relieve painful respiration, so that freedom of this function being permitted, the characteristic friction of pleurisy can be readily ascertained.

The early invasion of phthisis, perhaps, most frequently tests the physician's diagnostic acumen, since it is not only often associated with, but in some cases most readily follows, pleurisy.

Cachexia and progressive emaciation are not so indicative of phthisis alone as generally supposed, for they are equally symptomatic of some types of pleurisy, and therefore require corroborative proof of the condition of ill health with which they are associated.

Bacteriologists will tell us that the only sure means of diagnosis is to be realized in the absence or presence of the bacilli of tuberculosis, but we all know how unreliable is this evidence in the earliest stage of phthisis, even when there are other clear indications of tubercular invasion to be observed. Many of us will call to mind cases in which a pleurisy was apparently wholly recovered from, yet, before many months passed by, subsequent definite signs of phthisis appeared, though there were no evidences, bacilli or otherwise, that such pleurisies were tubercular in their nature. We know, also, how often, when bacilli are not present, cases manifestly tubercular progress to a fatal issue. When detected in the sputum, the bacilli undoubtedly afford us valuable confirmatory evidence in diagnosis, but their absence cannot, under the cir-

cumstances, necessarily preclude a diagnosis of tuberculosis, and it is not safe to defer a diagnosis until their presence is verified in all cases.

Treatment.—Upon the question of treatment I advance with becoming hesitation, because I address a body of practitioners each of whom is, no doubt, inclined to his own peculiar mode of practice. There is no such thing as a stereotyped plan of treatment for pleurisy, as I have under different forms of treatment experienced excellent results.

There are, however, few maladies in which, at the outset, active and skillful attention are better rewarded than in the management of acute pleurisy. The chief aims are to relieve pain, subdue fever, lessen inflammation, and control, as far as may be possible, the tendency to exudation. The first can best and most promptly be accomplished, by an appropriate dose of morphia and atropia hypodermatically administered; and by encasing the chest in one layer of lamb's wool wadding after applying to the surface a terebinthinate liniment. By the wool dressing a uniform temperature of the surface is maintained, and peripheral sensitiveness to chill prevented. Usually one hypodermic effectually and permanently quiets pain, but there is no objection to its repetition if necessary; however, the embrocation should be applied once or twice daily, until recovery occurs. If the fever is high, a powder containing some one of the antipyretics, combined with calamel and Dover's powder; or the antipyretic with Dover's and James's powders, in appropriate doses every six or eight hours, may be given. Of course, omit the Dover's powder in the first dose, if the hypodermic has been previously administered. In addition to the above treatment I find the spiritus mindererus a very serviceable adjuvant to the therapeutics of pleurisy. By these remedies pain is relieved, the functions of the skin, kidneys, and bowels are favored, and vascular tension materially diminished.

As the digestive functions are always more or less impaired while the fever lasts, some little attention should be paid to the dietary. Nourishment ought to be introduced principally in fluid form. Milk alone, or combined with the powdered beef peptonoids, consti-

tutes a most acceptable form of alimentation. The liquid peptonoids or soups with some form of pepsin may also be advised.

Stimulants are contra indicated except in some rare instances when supuration threatens, or when in the late stages the vital powers manifest depression from prolonged illness.

Strapping of the chest, after the method of Dr. Roberts, of University College Hospital, to give rest to the respiration, has received the warm support of many physicians; but I cannot give this my approval except it be continued a very limited time. There is no doubt that by modifying chest movement, as well as restricting pulmonary action, pleural pain is materially lessened; but if this dressing is maintained for any length of time, I apprehend serious consequences, affecting both the pleura and the lung, may follow, and structural changes of a more or less permanent character about these parts will take place. If any appliance of this sort is deemed necessary, I have decided preference for an elastic gauze bandage which would answer every purpose designed by the plaster strips, and could be more promptly and easily removed when desired.

Strips of adhesive plaster applied as advised by Dr. Roberts, would admit of so little rib motion, and would lessen to such a degree pulmonary function, that not only would the air vesicles be liable to become clogged with mucus and occasional congestion, but plastic adhesions also of a permanent character would be very apt to take place about the pleura.

In all cases, at the outset, I would favor the general principle of treatment first referred to, with such modifications thereof as each individual case seemed to require.

Usually, no restrictive appliances to the chest are required, and I believe if such measures can be dispensed with, the passive respiratory action being uninterrupted, the pleura and lung will escape changes in their structure, such as I have already indicated.

After the acute stage is passed, friction of the chest may be continued with a liniment composed of turpentine, laudanum, camphor, and oil of sassafras; or a solution of iodine may be applied, one

drachm to one ounce of sulphuric ether, as recommended by Dr. Bowditch. If adhesions form, and there remains a sense of soreness over any part of the chest, small blisters in several spots will prove of great value; and iodide of potassium or strontium, internally, will facilitate recovery.

When frequent vesication is desired, I have for some years used pure carbolic acid, and endorse Ollivier's commendation of it in the case of children, where, especially, it is preferable to cantharides.

In subjects manifestly cachectic, the iodide of manganese or iron, together with cod-liver oil or malt in some form, might very properly be prescribed; and I might here add, that the manganese preparations agree better with those pleurisy cases complicated by the tubercular diathesis.

The chloride of iron in some form constitutes one of the best diuretics in some cases with small amount of serous effusion, and also serves as an admirable tonic after aspiration. Anstie recommended its administration throughout the conduct of all cases.

Salicylic acid and salicylate of sodium have not shown, in my experience, any special value in ameliorating or shortening the course of the disease, and I have not considered their use as diuretics superior to chloride of iron, the liquor ammoniæ acetatis, or the acetate and nitrate of potash alone, or in suitable combination. I am disposed to believe with Dr. Parsons,[†] of Northampton, Mass., that the salicylates may be useful only when pleurisy is secondary to rheumatism, but are not to be depended on in the primary form of pleurisy.

The so-called "thirst cure" and a course of Jaborandi have their advocates, but such cases as would be likely to resist the other remedies I have mentioned, would not, in all probability, be benefited in the least by the two alternatives named.

It would be really diverting, if not so serious a subject, to contemplate the views and opinions of prominent men respecting the value of the various remedies and modes of treatment advocated for pleurisy. What one lauds highly for apparently valid reasons,

[†] Trans. of N. Y. State Association, 1892, p. 265.

another condemns in unmeasured terms, and that which he in turn declares of superior advantage, another equally learned brother as surely adjudges useless. The fact is that no fixed rules of treatment will apply in all cases. Individual temperaments are always to be considered, and a study of the character of the invading malady must not be neglected.

If the case resists all measures of treatment, and effusion both persists and increases, operative interference becomes necessary. Therefore, when sufficient effusion has occurred, the sooner aspiration is undertaken, the better it will be for the patient. No danger need be apprehended through the procedure. To wait until effusion has occurred to the extent of compression of the lung, so that breathing becomes embarrassed, is not, in my judgment, either prudent or enlightened practice. With Drs. Dildam, John Shrad, Cronyn, Truax, and others, I believe that early respiration not only prevents chronic pleurisy, but also wards off other complications.

From remarks made in a discussion which took place, on this subject, at the last session of this association, by Drs. T. H. Manley, John Cronyn, C. A. Leale, and E. D. Ferguson, of New York, McLean, of Detroit, and Dandridge, of Cincinnati, it would be very natural for anyone to infer that aspiration is not so simple an operation as it appears to be; and I am inclined to take the same view of it as they do. I was, however, much gratified to hear the able defense advanced for the practice of aspiration by Dr. Cronyn, of Erie County, whose experience as to its value fully fortifies the opinion in this regard entertained by myself.

When we have to deal with simple, serous effusions, one aspiration will often suffice, though instances do occur when two or more are required to complete recovery. Success in achieving permanent benefit is attributable to both skill in its performance and judgment shown in the extent to which the cavity is emptied. All authorities caution against the too complete withdrawal of the fluid, believing that by removal of the entire amount at once the absorptive power of the pleura may be destroyed and reaccumulation rendered more prob-

able; while there is some danger through such an injudicious proceeding of sudden death from congestion of the lung, occasioned by its too rapid return to its normal condition, there is no doubt that absorption is often so remarkably facilitated and increased by partial aspiration that the case will readily yield to subsequent medicinal treatment without further surgical measures.

In empyema this resource should not find favor, unless undertaken as a measure of temporary relief when pus so completely fills the pleura, and the condition of the patient is so threatening as to render an operation for external drainage too hazardous to attempt. In such an emergency it would be manifestly a better plan to aspirate first, thereby placing the patient in a more favorable condition to withstand the greater shock of subsequent incision.

As to the relative value of the two methods, I am convinced that in empyema the open drainage expedient supersedes aspiration, for through its more thorough means of evacuating the pus there is less danger of exhaustion from chronic septicaemia or secondary abscesses.

Much has been written in relation to resection of the ribs when operating for empyema, and I am gratified to note that surgeons, at the present time, are taking a far more conservative view of this subject. The majority of authors, I think, are adversely disposed to the operation, except in those rare instances where the lung is confined by strong adhesions, leaving a large suppurating cavity not likely to contract and close without excision of a portion of one or two ribs.

In my own experience, resection of a rib has not been practised in children where empyemas were simple and uncomplicated, for I have found that perfect drainage could be maintained when a suitable drainage tube is selected. The ordinary soft rubber tubes used for this purpose are not sufficiently firm to overcome compression by the intervention of granulation tissue, and consequently soon become inadequate for drainage; but the corrugated white rubber tubing, which I exhibited in 1892,[†] has never failed to give me entire satisfaction in these cases, and appears to meet every

[†] Trans. of N. Y. State Association, 1892.

requirement for the purpose of effecting long continued drainage.

The indiscriminate use of antiseptic injections cannot be too strongly condemned, since many fatal results have immediately followed its practice. Immediate washing out of the pleural cavity, after operation for ordinary empyema, is always an inadvisable and hazardous procedure, only permissible at later periods when performed with greatest caution.

In the case of gangrenous cavities, however, while I believe antiseptic injections are generally indicated and are always better tolerated, the douching should always be performed with particular care. The plan by syphonage is much preferable to syringing, for reasons which will readily appear to you all. I have known metastatic abscesses, involving important large joints, follow

too diligent irrigation of the pleural cavity after operation for simple empyema, seriously complicating and prolonging convalescence.

Prompt recovery after operation can alone be fulfilled by the most assiduous watchfulness on the part of the attendant, as indiscretions of any sort are only liable to be followed by intercurrent complications of an unfavorable character.

It is unnecessary to allude to the advantage to be gained in respiratory gymnastics by graduated exercise after each and every removal of pleural effusion. Inhalation of compressed air, afforded by the cabinet treatment, and residence in high elevations, offer admirable opportunity for indulging in such lung exercise, and are considerations in the after treatment of these cases, of too great importance to be neglected.

COMMUNICATIONS.

THE LATEST THING IN SURGICAL FADS.

G. FRANK LYDSTON, M. D., CHICAGO, ILL.

Every now and then the medical profession has brought to its notice a new operative procedure for the relief of obstinate surgical diseases of various kinds, and long before it has been fairly tested, it often becomes more or less of a surgical craze. Let the sanction of high surgical authority be ever so lukewarm, the rank and file of the profession seem to tumble over each other in their efforts to be the first to present a series of operations involving the new procedure. The oöphorectomy craze is on the wane, but it is still worthy of attention. The adoption of a surgical fad is dangerous in proportion to its simplicity and ease of performance, and it is by no means surprising that the new operation that has been suggested for hypertrophy of the prostate should be adopted by so many men of limited surgical experience. So important is this question that I take the opportunity of

repeating in this article, the points brought out in my recent letter in the *Medical News*. Castration is an operation so easy of performance, and so stubborn an affection is hypertrophy of the prostate, that the temptation to perform the operation, especially in view of the encouraging reports that have been published, is naturally great. I do not propose to quarrel with the accuracy of the experiments or the conclusions of my distinguished confrère, Dr. J. William White, of Philadelphia, who, following the lines suggested by Ramm's work, but without knowledge of the latter, a short time since gave the results of his experimentations on dogs, and made the suggestion of the possible beneficial results that might be obtained from castration in enlarged prostate in the human subject. The avidity with which certain surgeons seized upon the straw held out to them by Dr. White

was amusing. There appeared to be a desperate struggle to determine who should be the first to perform the operation or a series of operations of the kind suggested by Dr. White. Given a willing patient, castration was performed and the case rushed into print with a rapidity that was as entertaining as it was ridiculous. One gentleman, who, by the way, is one of my personal friends and for whom I entertain a high regard, reported a case illustrating the success of the operation of castration for enlargement of the prostate in something like two weeks after the performance of the operation. It is hardly necessary to comment upon this case as a specimen of claptrap clinical observation. Such clinical experiences are conducive to notoriety, it is true, but as far as their practical value as bearing upon the operation is concerned, they are absolutely worthless. A number of other cases of equally fallacious clinical reports have appeared upon the medicoliterary market from time to time. The tendency seems to be to adopt the new operation as a specific for prostatic hypertrophy with a total disregard as to the proper selection and differentiation of cases.

There is a tinge of grim humor about the new surgical procedure in prostatic hypertrophy. We all remember how ye callow surgeon of every "cross roads" rolled up his records of "my first one hundred oöphorectomies" a short time since. The new woman is upon us with her "bloomers" and running us down with her bicycle. Let us have a care lest, oh, most poetic retribution! the medical new woman develop a passion for records. It may come to pass that she will advocate castration as a prophylactic, and thus menace the very foundations of society. Why not? The extirpation of the normal vermiform appendix has been gravely proposed as a prophylactic against its "it is." It is only a question of whose ox is gored.

Much stress is laid upon the results of experiments upon the lower animals, it being claimed that the removal of one testicle will produce atrophy of the prostate in both animals and human beings. Excellent observers have noted apparent evidence in support of this view. Such reports, in my estimation,

are to be received with a certain degree of caution. The normal prostate is by no means so easily outlined by the examining finger as some would have us believe, and a certain degree of skepticism is therefore warrantable in the consideration of cases in which the removal of one or both testicles has produced shrinkage of the normal organ. I am not going to quarrel specifically with reports of this kind, but I have had several patients under observation in which the experience of some of my colleagues is directly contradicted. I do not, however, accept my cases as conclusive, but I am perfectly willing to admit that with increased facilities for observation, the character and weight of evidence may be changed. I venture to report these cases on account of their suggestiveness.

Case 1, was that of young gentlemen, twenty-eight years of age suffering from chronic traumatic orchitis that had destroyed the function of the right testicle at the age of five years. A small hydrocele with extremely thickened walls was present. The tumor was very large, and as the testicle was evidently out of service, and extremely objectionable on account of its weight, I suggested an operation. The testicle was removed, and the patient has been seen from time to time during two years past. He had gonorrhœa shortly after the removal of the testicle, and a subsequent follicular prostatitis with epididymitis of the remaining testis. The prostate was somewhat enlarged as a consequence of the follicular inflammation. The enlargement has subsided, but the organ is still larger than normal.

Case 2, was that of a gentleman forty-five years of age, a monorchid, whom I treated for stricture and vesical inflammation. This patient has a prostate distinctly larger than the normal average.

Case 3, was that of a gentleman, fifty years of age, who consulted me regarding chronic prostatitis with considerable prostatic enlargement, which had begun some months previously. On examination of this patient I was interested to note that he had but one testicle. On inquiry he stated that the absent member was lost through an injury received in the late war.

Case 4. This man, thirty years of age, consulted me regarding a chronic prostatorrhea which he believed was incidental to masturbation in boyhood. One testicle had been lost by injury at the age of sixteen. The prostate in this case was tender and enlarged. There was a history of slight stricture which had been treated some years before.

It may be objected that these cases have no direct bearing upon the effect of castration upon the normal or senile hypertrophic prostate. It must be remembered, however, that these cases are a fair illustration of what exists in the early stages of a great many cases of enlarged prostate. More than this, they typify the condition existing in the incipient stage of a certain proportion of cases of prostatic hypertrophy, at the time when the best effect would be expected from castration if all that is claimed for the operation is true. In the case of the cryptorchid, the objection might be raised that the testicle which was apparently absent was retained within the abdomen, and was functioning with sufficient activity to preserve the physiological integrity of the prostate. It is to be remembered, however, that in the case of cryptorchidism there is something more to be considered than the mere absence of the testes from the scrotum. Retained testes are always degenerate, and the imperfect development of the testes should certainly have an effect upon the prostate, judging by the reported results of castration. It would seem, furthermore, that a more pronounced effect would be produced upon the prostate through coincidental failure of development of that organ. I am prepared to accept the statement that castration relieves a certain proportion of cases of prostatic enlargement. I believe, however, that in the most typical forms of prostatic hypertrophy, castration is not likely to accomplish any marked effect. There are cases, for example, in which much of the trouble experienced by the afflicted individual is due to a large quantity of residual urine. Shrinkage of the enlarged prostate in these cases is not likely to produce any very beneficial results, because the bladder walls have become so changed by disease that no method of treatment short of cystotomy will bring about the

bladder drainage necessary to a cure or even marked relief. In those cases of prostatic hypertrophy in which distinct circumscribed fibro-adenomatous tumors exist about the neck of the bladder, it does not seem reasonable to expect much from castration. The cases in which it is most likely to be beneficial are in relatively young subjects in whom the activity of the gland and its nerve supply is still well marked. In those cases in which the prostatic enlargement is, so to speak, incipient, the overgrowth is soft and is likely to be benefited by measures of treatment less severe than castration. Chronic inflammation and hyperplasia will express as nearly as anything, the condition of the prostate in these cases. Prostatic massage, with measures to allay irritability of the deep urethra, i. e., the true vesical neck is likely to prove of great value in these cases.

One thing is certain, that in individuals with active sexual desire and normal potency, castration is by no means to be thought of. I know of no rational operation upon the bladder and prostate which is not more justifiable. Some of my overenthusiastic surgical brethren are likely to get themselves into very hot water if they do not exhibit more caution and conservatism in handling prostatic hypertrophy than seems to be the tendency in certain quarters. Within the last week I have been consulted by a gentleman, fifty years of age, who enjoys the fullest sexual vigor, and who has a moderately enlarged prostate with frequency of urination, but with little or no residual urine. Several surgeons have advised this gentleman to submit to the operation of castration. I take this opportunity of interposing a strenuous objection to such operative procedures in cases of this kind. I do not believe that castration is warrantable as long as the individual retains his virility. This restricts the operation to a very limited field, inasmuch as the testes become more ornamental than useful at a rather late period.

I recall an incident in my own practice suggestive of the truth of this statement. A gentleman, seventy years of age, consulted me for enlargement of the prostate. I incidentally mentioned the new operation for the relief of that

condition. The old gentleman amused me greatly by remarking that while "that operation might do for real old men," he would have "none of it." He expatiated sufficiently to convince me that his testes were by no means useless appendages.

Sooner or later some surgeon will get himself into serious trouble through having castrated a man for enlargement of the prostate. The patient who, in the presence of keen suffering is likely to disregard the loss of his testicles, is also quite likely to experience a sufficient amount of regret after his sufferings have been relieved, to consider the question of malpractice, and when the existence of other and more logical operations for the relief of the symptoms incidental to hypertrophy of the prostate are taken into consideration, the sympathy of the average jury is liable to result disastrously to the surgeon.

It is my opinion that the operation of castration for hypertrophy of the prostate should be advised only in men in whom the sexual function has either become abolished or so nearly so that the testes have become useless appendages. The operation is safer than operations upon the prostate, but no safer than suprapubic cystotomy, if properly performed. Indeed the danger in the two operations is almost identical inasmuch as it is the anesthetic, rather than the operation per se, that threatens life. Should it be shown, by further experience, that the operation of castration may be relied upon for relief in the larger proportion of advanced cases it will then be warrantable to perform the operation of castration as the preliminary procedure. Should the operation fail then suprapubic cystotomy is to be performed. In many of these advanced cases the indication for vesical drainage is likely to be so marked that the operation of castration will not be worthy of consideration. If the patient has to live but a sort time, and his life is menaced by inflammation and sepsis, suprapubic cystotomy, prolonged drainage and frequent irrigation would seem to be much more logical than castration.

It must be admitted that the operation of castration for hypertrophy of the prostate is still in its experimental stage, and I venture the opinion that what the procedure most needs is to be saved

from its friends. Surgical "itch" and cupidity are likely to seriously cripple the future of an operation which certainly has a certain degree of promise.

As far as my own conservatism is concerned, I am ready to become radical in the application of the operation to appropriate cases as soon as sufficient evidence has been accumulated by competent observers. I certainly will not accept as competent those observers who report cases within a few weeks after the operation, when, as a matter of fact, the rest necessitated by the operation, the sedative effect of the anesthetic, and the duty incidental to the after care of the case, may be mainly responsible for the benefit of the operation. I wish to know, moreover, that the results are permanent in a large proportion of cases. At one time I firmly believed that suprapubic cystotomy would permanently cure a large proportion of cases of enlarged prostate. I found that during the prolonged drainage after an operation, the enlargement of the prostate subsided very rapidly.

With reference to the speedy resolution of the prostate claimed to result after castration, I note that I have observed a similar apparent resolution of the diseased process within one week after suprapubic cystotomy and drainage; yet, in the larger percentage of instances, I have found that suprapubic cystotomy was by no means a permanent cure in the cases of more pronounced prostatic enlargement. In younger subjects, suprapubic drainage will invariably, in my experience, bring about a subsidence of the prostatic enlargement, which in many cases will remain permanent. When circumscribed tumors exist, however, and in cases in which the prostatic enlargement is firmly organized, such a result is not to be anticipated.

In conclusion, I will reiterate my belief regarding the surgery of the prostate, that the radical operations of prostatectomy and prostatectomy at an early period of the disease are not performed with sufficient frequency. If patients of middle age were given to understand distinctly that their prostatic disease is bound to grow worse instead of better, and an operation was suggested at an earlier period, we would hear less of the incurability of prostatic hypertrophy.

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PHILADELPHIA, SATURDAY, SEPTEMBER 28, 1895.

PUBLISHER'S ANNOUNCEMENT.

For some time past there has been irregularity and delay in issuing the REPORTER, and complaints have been received from subscribers of the uncertainty and annoyance to which they have been subjected in consequence. The Butler Publishing Company, therefore, take this opportunity to offer explanation and to make important announcements.

The late publishers operated the MEDICAL AND SURGICAL REPORTER for the owners, the Butler Publishing Company, under a lease which gave the lessees full control of the journal, and placed upon them entire responsibility for its business management.

Complications in other departments of the publisher's business so involved the interests of the REPORTER that the owners were impelled to recover possession and control of the journal under a forfeiture clause of the contract.

The Butler Publishing Company, therefore, pending readjustment, has resumed full control and management of the REPORTER, and calls the attention

of subscribers, correspondents, publishers, exchanges, and all having business with this periodical to the following announcements as in effect until further notice.

The notice of removal to New York, of the editorial and business offices, is recalled. The REPORTER, as heretofore, will be edited and published at Philadelphia.

All business communications, subscriptions, remittances, etc., etc., should be addressed to the publishers, MEDICAL AND SURGICAL REPORTER, P. O. Box 843, Philadelphia, Pa.

Remittances, whether by check, draft, express or money order, should be made payable only to the MEDICAL AND SURGICAL REPORTER, and, together with registered letters, should be addressed as above.

All other communications, and all exchanges, reprints, books for reviewing should be addressed to the editor, MEDICAL AND SURGICAL REPORTER, P. O. Box 843, Philadelphia, Pa.

The service of the editor, who, as em-

ployed by the late publishers, was not concerned with the business management of the journal, terminated with the lapse of the contract. Dr. Kynett, however, is placed in full editorial control of the REPORTER, under the present management.

The REPORTER desires to express grateful appreciation of the consideration and forbearance it has met throughout the recent emergency, and trusts there will be no further occasion to trespass on the patience of its patrons.

ABSTRACTS.

REAL AND ALLEGED INJURIES OF THE SPINE.

Dr. Arthur Dean Bevan publishes the medico-legal study of a railroad accident in which two hundred and fifty-six people fell a distance of twenty feet, with special consideration of the real and alleged spinal injuries sustained.

The subject of injuries to the spine has received much attention in the last thirty years from surgeons and medico-legal experts; more, possibly than any other one medico-legal subject. It has been discussed and rediscussed by judges and lawyers, the general practitioner, the neurologist and the surgeon. In the consideration of these injuries, the terms "railway spine," "concussion of the spine" and "Erichson's disease," produce much confusion, because these synonymous terms have been used to cover many diverse conditions, such as concussion of the spine without gross lesion analogous to concussion of the brain, hemorrhage within the spinal canal, contusion and laceration of cord and membrane, and even injuries of the vertebrae and their articulations. For years the term concussion of the spine was employed to describe a jumble of actual lesions, subjective symptoms, psychoses, errors of diagnosis and attempts to defraud.

Later the term was employed to describe a peculiar disease, a secondary degeneration of the cord following concussion of the spine and not accompanied with gross injury. The literature of this subject has become vast, beginning with Erichson's article which is the first systematic presentation of the subject;

other important contributions are those of Page, Oppenheim, Strümpell, Thorburn, Dana, Charcot, Obsteiner, Watson, Starr.

Little light, practically nothing but negative evidence was shed on the subject by post-mortem examinations. In the lack of post-mortem evidence neurologists theorized learnedly upon the pathology and attempted to make their theories conform to the multiform symptoms presented. One wise man in order to meet all the symptoms placed the pathological changes in the sympathetic nervous system. The sympathetic is distributed to every vascular tissue in the body and the wise man's theory could be made to fit every symptom presented. But, he might as well have said that the disease was a blood disease or have fallen back on the old humeral pathology, for although his theory was safe there was not one pathological fact to support it. For a time at least the condition of railway spine with its slight trauma, its secondary degeneration and grave results was accepted as a demonstrated and frequent surgical lesion. It is unnecessary for me to mention what an important fact the recognition of this condition became in a medico-legal way and how the recognition of this disease cost millions of dollars to corporations.

Early in the discussion of railway spine, the neurologist with his theories was for the existence of such a lesion. The railroad surgeon with his clinical experience was in doubt. Then later, with further study the neurologist wav-

ered in his position and began to class most of these cases under the head of traumatic neuroses and the railway surgeon became convinced that concussion of the spine with secondary degeneration was a myth. To-day the terms concussion of the spine, Erichson's disease and railway spine have been dropped. The cases which were formerly classed under these heads are found to belong to two groups. First, real injuries of the spine, actual lesions of the vertebral column and contents, presenting immediate and definite signs of their existence. Second, alleged injuries which are either psychoses, abnormal cerebral conditions arising from fright, shock, slight traumas, medical suggestion, pecuniary suggestion, sympathetic care, or cases of malingering and errors of diagnosis.

My experience with this subject has been obtained from eight years of railroad work, during which time I had the surgical charge of all such cases occurring on two thousand miles of track. I began my work in 1884 with the full belief that Erichson's disease was an accepted condition and handled my work accordingly. In following out my cases, however, I found that one after another of my supposed incurable cases of concussion of the spine recovered. I began at first to doubt my ability to diagnose these cases, I then began to doubt the integrity of my patients and at last to doubt the existence of the disease itself. From a careful clinical study of more than two hundred cases I present these conclusions:

That Erichson's disease, defining such disease as an injury of the cord without definite and immediate signs of gross lesion but followed by secondary degeneration does not exist.

That the cases formerly described as "Erichson's disease" fall under four groups:

First. Actual lesions of the vertebral column and contents of spinal canal accompanied by definite and immediate signs of such lesion. Second. A psychological condition resulting from trauma and nervous shock received in an accident. Third. Cases of malingering. Fourth. Errors of diagnosis.

Experimental research, clinical experience, post-mortem examinations, the

results of medico-legal cases all go to support this position.

Experimental researches frequently repeated show that if an animal is dropped a distance of twenty-five feet so as to strike on the buttocks or spine, a great variety of injuries can be produced. Fracture of the base of the skull, fracture of the spine, gross lesion of the cord, rupture of the spleen, liver, etc., but never an injury to the cord, without immediate and definite signs of gross lesion followed by secondary degeneration. Clinical experience shows us that the cases of actual lesion of the cord present definite and immediate signs of their existence, and that secondary degeneration does not follow traumas which do not at the time give definite and immediate evidence of their existence. In spite of the fact that thousands of cases of so-called Erichson's disease are on record, post-mortem examinations have never shown secondary degeneration following injuries so slight that definite signs of gross lesions were not at once evident.

Medico-legal study shows that the supposed cases of Erichson's disease recover, and as a rule rapidly, after the exciting causes of litigation etc., have been removed.

In the discussion of the four groups; Gross lesion of vertebrae and cord; traumatic psychosis; malingering and error of diagnosis, we find little difference of opinion among the authorities on these subjects in their handling of gross lesions, malingering and errors of diagnosis, because here definite evidence is at hand, but in the second group, traumatic psychosis in spite of the accumulation of evidence we still find diverging opinions.

In support of the position which I have taken, I desire to place on record some evidence which I regard as of great value. This evidence consists of a medico-legal study of a wreck, in which the conditions were practically those of an experimental research, 256 people being dropped the distance of twenty feet, striking on their feet or buttocks, the injuries which each one sustained, and the consequent history of each case being carefully recorded as well as the claims of injury and the results submitted in each case in its legal settlement.

A long passenger train containing 256 passengers, trainmen and tramps, was crossing a trestle twenty feet high and a half mile long, at a speed of twenty miles an hour. Suddenly the engineer blew the whistles and put on the brakes. For some reasons unknown the engine plunged through the trestle. The trestle under the train collapsed like a pack of cards letting the entire train fall twenty feet. All of the cars except the mail and express remained in their proper position and relation to each other. It was three hours before a relief train reached the wreck. The wreck was then systematically handled, the extent and character of the injuries in each case noted, temporary treatment and dressings employed. The injured were then taken, part of them to a city hospital and part to a country hotel. As chief surgeon of the road I controlled the surgical management and was consulted in the medico-legal conduct of each case. The report, therefore, which I submit, is based upon my own study of these cases covering a period of four years, within which time all the claims were settled.

Of the 256 people in the train at the time of the accident, 123 were injured; of these four were killed outright and two subsequently died. The wreck occurred at night in a sparsely settled country and help had to be brought from forty-five miles away. All of the people were thoroughly and completely demoralized when the relief train arrived. It was necessary to carry forty of them on stretchers to the relief train. It was fifteen hours after the accident before they were all comfortably provided for. I mention these facts to show that conditions capable of producing fright and great nervous shock were present. In analyzing the nature of the injuries we found that four people had been killed by crushing injuries and that twenty-two people sustained fractures, six of which were compound. There was one dislocation; there were eight incised and lacerated wounds; eighteen sprains of ankles, knees, wrists and elbows; six with no external evidence of injury, all cases of nervous shock. Fifty-eight cases of contused injuries; two injuries of the eye; one internal injury; one hernia; one abortion;

one injury to vertebra column and cord.

Many of these cases made indefinite claim of having railroad spine, but the claim was made seriously in thirty-five cases and susported by medical testimony in twenty-four cases. Eight of these cases were settled in court, the balance outside of court. I shall read a list of the cases and give figures of settlement.

In the settlement of these cases many frauds were detected in the effort to palm off an old injury or lesion as recent and produced by the accident, such as hernia, bunion, curvature of the spine, blindness in one eye the result of thrombus of the central artery of retina, displacement of the uterus, gray hair which was dyed at the time of the accident and got suddenly white after it, etc.

One instructive fact in connection with the accident was the ease with which the plaintiffs could obtain partisan testimony from interested and ignorant physicians.

There were 123 injured people. There were twenty-four serious claims of railroad spine backed up by medical testimony and many more in which the claim was advanced when the individuals made their settlement with the company.

The history of the one single case of actual lesion of the cord is as follows:

Man, age forty-two years, gross injury to vertebral column and cord. Settlement F. Death two years later from lithotomy. The patient's right lower limb, bowels and bladder completely paralyzed after injury. The left limb retained some motion and sensation. Could not at first discover any deformity in the vertebral column although there was evidently a gross lesion. Two weeks later a prominence appeared in the lower dorsal region, due to the thickening produced by the process of repair and located distinctly the point of injury. Patient's general condition improved, but paralysis of limb, bowels and bladder remained. A stone found in bladder and patient died from operation performed for its removal two years after injury.

The interest of this wreck centers on the twenty-four alleged cases of railroad spine backed up by medical testimony.

Some of them were clearly cases of malingering; some were examples of traumatic psychosis. These cases have all been settled; they have all recovered. The more interesting I shall analyze in detail. One point I would like to make clear in regard to these twenty-four cases and that is that part of them were in my immediate charge and part in the immediate charge of outside physicians, although under my supervision for a time at least. All of the cases in my immediate charge were perfectly and completely well in four weeks; the cases that did not recover as soon as their scare was over were without exception in the hands of men who regarded them as cases of railroad spine; that the condition of the patient was serious and critical and so informed them.

Their physicians were more responsible for the condition of the patient than was the accident.

I am positive that had I had each one of these cases in a private room at my hospital and if the item of compensation had been arranged in each case that in none of them would there have been a trace of the nerve shock at the end of a few weeks; that they would all of them have recovered their normal equilibrium at the end of that time. In no class of cases can the intelligent physician be of as much service and in no class of cases can the ignorant physician, the partisan physician, the partisan neurologist or partisan medico-legal expert be of as much injury as in cases of traumatic psychosis.

I shall present a brief sketch of the twenty-four alleged injuries of the spine.

1. Injury to back, no evidence of external injury. Claims paralysis of right upper extremity and that her hair changed suddenly within a few weeks, white, after the injury. Claims severe nervous exhaustion and that she is permanently disabled. Settled D. Recovery.

No question but that it was a mixture of nerve shock and malingering. Her hair had been dyed or bleached a reddish brown before accident and she had allowed it to resume its natural color.

2. No evidence of external injury, made claim of railroad spine, remained in room, used crutches, said one lower

limb was paralyzed and had great pain in back, whenever any agent of company was about used crutches and dragged limb. A detective took him out in buggy two miles from town to look at some farm land and left him so that he had to walk home, which he did naturally without the aid of crutches until he came to the outskirts of town. Settled B. Within a short time was teaching school and entirely recovered.

3. Rib broken, claimed railroad spine, remained an invalid until settled C then recovered entirely.

4. Bruised leg, claimed railroad spine, claimed paralysis and permanent injury, remained an invalid until settlement C then recovered rapidly and returned to work.

5. Ribs broken, claimed railroad spine and permanent injury, remained an invalid and sued the company for twenty thousand dollars. Morning before suit, case settled for E recovered and returned at once to business.

6. No evidence of injury, claimed spinal concussion and permanent injury, was suffering from rheumatism at time of accident and was in search of a favorable climate to live in. Used crutches. Case settled D. Recovered the day he had check, and traded his crutches at the drug store for toilet articles and left town perfectly well. Settlement was made in this case largely to get rid of him as he was putting up all the injured to claim railroad spine.

7. No evidence of external injury except bruise on chest. Was tubercular. Great nervous shock, claimed permanent nervous injury, three months later stated she had not slept and was unable to work and had had hemorrhages from lungs due to injury. Settlement made C. Improved, returned shortly to her work and died two years later of consumption.

8 and 9. No evidence of external injury, claimed the night of wreck that they were both permanently injured in spine and would make the railway company suffer. Went home, pretended to be in bed and invalids for seven weeks with the most exaggerated symptoms of spinal trouble. Settled for C each. Same week left for short trip and returned entirely recovered.

10. Commercial traveler. No evidence

of external injury, great fright. Typical traumatic hysteria, was under my immediate care, complained of frightful pains in back and inability to move lower limbs. At end of week I picked him up in my arms and put him on his feet, told him he was a fool and that he was simply frightened and not hurt. He began to cry like a child. I held him on his feet and in ten minutes convinced him that he could walk. He left the hospital at the end of three weeks, settlement made C. After he left hospital went to San Francisco, consulted several physicians. One told him that he had railroad spine, he was badly frightened, consulted another physician who recognized the conditions, encouraged him and he at once resumed his work. I have seen him repeatedly, he is most grateful to me for the way I handled him, although he thought it rough at the time. As he expresses it, he was in such a condition that if he had been told that he had serious spinal injury he is convinced that he would have become a chronic invalid.

11. Sprained ankle. Claimed railroad spine and permanent injury, played the part of invalid, claimed loss of power in injured limb; settlement C. Recovered and returned to work after drinking up the money.

12. Sprained ankle, claimed spinal injury, inability to use limb and permanent injury; settlement C. Recovered and returned to work.

13. Contusion of chest. Claimed fracture of sternum and spinal injury. Was editor of paper. Stated he had lost his memory; great general weakness, inability to work; loss of eyesight; permanent nervous injury. Remained an invalid until settlement was made, settlement of D. Recovered within a few weeks and returned to his work.

14. Lacerated wound of nose and forehead. Claimed on stand that there had been fracture of skull and spinal concussion. Claimed impairment of vision, loss of memory and permanent injury. Jury gave plaintiff C. Money paid, case recovered at once and resumed work.

15. Contusion and laceration of the face and shoulder. Claimed spinal injury and permanent invalidism. Jury

gave D. Case settled and man recovered and resumed work.

16. Old lady. Great nervous shock and stiffness and soreness after accident. No external injury. Claimed fracture of the spine and cited as evidence in court, old curvature; claimed spinal injury and permanent invalidism. Jury gave C. Case settled and recovery followed within a few weeks.

17. Girl of twenty. Nervous shock; no evidence of injury. Claimed spinal injury and permanent invalidism; remained in bed and never left home until settlement was made for C. Then recovered at once and left town.

18 and 19. Man and woman. No external sign of injury in either case. Both claimed spinal injury and permanent disability from the very night of wreck. Woman very hysterical. Man, a man of more than ordinary intelligence. Wanted \$30,000 apiece. Became chronic invalids, all the symptoms of Erichson's spine present in an exaggerated degree. Woman claimed a gross injury of the vertebral column and presented as evidence a prominent but normal spinous process of lumbar vertebrae. Wore plaster jacket for some weeks; put it on about two months after the injury. Man took chloral and morphine, and impaired his general health; looked like a wreck. They kept up this condition of things for a year and a half. They accumulated a vast amount of medical evidence as to their conditions, some from neurologists and some from general practitioners. About a year and a half after the wreck their claims were settled for E. Before this neither of them had done any work. After the settlement they at once resumed work.

These were cases of artificial and induced invalidism. The people were intelligent and refined, and apparently honest. They were cases which believers in concussion of the spine would have pronounced as typical and yet there can be no question but that it was within the power of an intelligent attending physician, and in the power of the patients themselves to have had them entirely well within ten days after the accident.

20. Great nervous shock, no evidence of external injury. Claimed at first an-

tiflexion of uterus. The matter was submitted to me and I informed her lawyers that the claim was absurd and asked them to submit it to three gynecologists. This was done and the three gynecologists evidently agreed with me, for a new claim was substituted, that of concussion of the spine. In the trial she developed the well-known symptoms, had abundance of medical testimony to support her claim and received a verdict of F. The case was compromised and she resumed her every day habits of life and recovered entirely, although she claims she has never been quite the same.

21. No evidence of external injury, felt sore and stiff next day after traveling 200 miles from wreck. When he arrived at home called in his family physician, who told him he had Erichson's disease and that he must remain in bed for five or six weeks and keep perfectly quiet. The physician put him to bed, gave him large doses of bromide and made applications of some sort to vertebral column. The man was ignorant and had lost what money he had at about the time of the accident. The confinement in bed and medicine affected his general health, he lost strength and weight. At end of three months I saw the case. He stated that his mind was affected, that his lower limbs were paralyzed, etc., etc. I lifted him out of bed and led him around the room and informed him that he must get up and take exercise, that he had no injury and that if he chose he could be entirely well in a month. He looked at me and said, "My doctor says that I am permanently injured, you say I am not hurt at all. Whom shall I believe?"

Within six months of time of accident the case came to trial. The trial was hastened by his lawyers who thought the man would die before its completion. The man was brought in on a stretcher. Various tests had been applied, the dynamometer, esthesiometer, electricity, etc., and evidence was submitted to prove that he was permanently disabled and was suffering from injury of the spinal cord. He received a verdict of F. This was paid. He went to Germany, remained a short time, returned and went to work.

A little incident in this case is of in-

terest. Last summer a relative of his committed suicide and at the coroner's jury it was shown that my former patient was chopping cord wood at the time of the suicide.

22. Sprain of ankle. Nervous shock. Later, claimed gross injury of vertebral column with spinal concussion and permanent invalidism. Submitted as evidence of gross lesion of vertebra, a prominent and irregular but normal spinous process in lower dorsal region. Later the claim was made that she had beginning Pott's disease, resulting from accident. She wore plaster jacket for some time. Later the claim was made that she had sustained great injury to her internal genitals, had ceased to menstruate; this was shown later to be due to pregnancy. A settlement was made C. She went on to term, gave birth to her child and recovered entirely.

22. Sprained elbow. Later claimed permanent nervous injury; claim settled, C, and recovery followed.

24. Contusion of face about the eye. Claimed gross cord and brain injury and loss of eyesight from accident. Had heart lesion. The eye was examined a short time after accident by a competent oculist who stated that the loss of sight was due to a lesion of old standing, probably thrombus or embolus of central artery of retina. Man had valvular heart trouble. Settlement was made D; recovery as far as general condition was concerned.

Many of the other cases talked more or less about their having sustained injury of the spine, but I submit these twenty-four cases because in each one there was medical evidence to support the patient's position. I mean that in each case physicians had given the opinion that the individual was suffering from spinal concussion and that they were permanently injured.

To summarize the study of this wreck.

1. The conditions of the wreck were most favorable for the production of alleged railroad spine. Out of 256 people, 123 were injured; six people were killed or died as direct result of their injuries. Among the many injuries sustained there was but one actual lesion of spinal cord and this was at once recognized.

There were twenty-four claims of con-

cussion of spine, presenting the usual subjective symptoms. Each one of these cases was regarded by regular practitioners and some alleged experts as cases of permanent injury of spinal cord, yet these cases all recovered entirely, none of them, however, until settlement had been made.

I would submit for your discussion, conclusion arrived at, not from a study of the literature of the subject, but from the clinical and medico-legal study of 200 cases occurring in my own practice, conclusions which agree perfectly with the results of the wreck which I have described in detail and which, from the conditions I regard somewhat in the light as an experimental study of the subject.

1. Real injuries of the spinal cord present positive and immediate symptoms.

2. Alleged injuries of the spinal cord without positive and immediate evidence of gross lesion are either cases of malingering or abnormal cerebral conditions, psychoses or a mixture of the two.

3. That these psychoses are the results of two factors: a. A brain readily affected by suggestions. b. Suggestions furnished by an accident with or without injury to the individual, suggestions furnished by the hope of pecuniary gain, suggestions furnished by sympathetic care, and lastly, of greatest importance, suggestions furnished by medical attendants.

4. To establish a diagnosis requires the immediate and sometimes protracted observation of the patient as in the study of any psychosis.

The supposed refined means of diagnosis as the dynamometer, esthesiometer, electricity, etc., etc., are seldom of value and are often of positive harm as suggestions to the patient.

5. These cases all recover when the exciting causes are removed, rapidly under proper surroundings and advice. Recovery may be indefinitely prolonged by improper surroundings and improper advice.

6. These psychoses will not receive their proper medico-legal position until the medical profession has been generally educated in the subject and until legal means are provided for the punish-

ment of maligners and their alleged medical experts.

NOTE—In the figures for settlement

The letter A means less than.....	\$	100
" " B " " " " " " " " " "		1,000
" " C " " " " " " " " " "	between.. \$	1,000 and 2,500
" " D " " " " " " " " " "	"	2,500 " 5,000
" " E " " " " " " " " " "	"	5,000 " 10,000
" " F " " " " " " " " " "	"	10,000 " 20,000

Chloro-Caffeine.

Pickering (*Jour. of Phys.*, vol. xvii, No. 6) relates experiments made with the view of studying the connection between the chemical constitution and the physiological action of the stimulus employed. Xanthine increases the force and the frequency of the embryo chick's heart and the frequency of the frog's heart but does not produce any tonic contraction. Theobromine, which is dimethyl-xanthine, has a greater influence in increasing the force and frequency of the chick's heart and in large doses produces slight tonic contraction. Caffeine, which is tri-methyl-xanthine, produces marked tonic contraction. In the experiments chloro-caffeine was used, in which an atom of chlorine is introduced into the caffeine molecule without displacement of the methyl radicals. The methyl groups would tend to induce tonic contraction of the heart muscle, the chlorine an atonic condition. The introduction of the chlorine atom was found to modify considerably the physiological action of caffeine. Chloral-caffeine produces far less tonic contraction of the heart than caffeine, so that it presents, apparently, an example of "physiological antagonism" going on in the interaction of the parts of one kind of molecule and living contractile tissue—in these experiments the myo-plasm of the embryonic heart. A solution of caffeine in chlorine water acts differently, the free chlorine being very toxic to the heart. The possibility of the chloro-caffeine being decomposed in the living tissue into caffeine and chlorine was considered but no evidence of such an occurrence could be discovered. Chloro-caffeine is a powerful diuretic and also apparently a cerebral stimulant. Experiments were made also with cyanocaffeine, but this was found to act more like a cyanogen derivative than a caffeine derivative, the cyanogen molecule overpowering the three methyl groups.

TAKA DIASTASE.

Ferdinand Lascar, Ph.Gr., (*The Therapeutic Gazette*, July 15, 1895), writes:

In the human system a continued waste takes place which it is necessary to provide for, and to this end man partakes of food which must contain the elements for this purpose. To bring such food products into proper form, so that they can be assimilated and taken up in the system, the digestive organs perform their functions, and these are of a mechanical and chemical order. The food needed is both animal and vegetable in nature, the latter forming by far the greater and more important part. It can truly be said that upon the proper digestion of his food, man's health, happiness, and very life depend, and progressive science has fully demonstrated the unerring truth of this. Any irregularity or fault in the process of digestion very soon becomes manifest, and dyspepsia, malnutrition, and ill health follow. As the food man partakes of is twofold, so is the process of digestion a twofold one, animal and nitrogenous foods needing an acid, while vegetable, starchy foods need an alkaline process to bring them into a soluble form ready for assimilation. The general idea about faulty digestion is that the stomach performs its duties improperly. While this, in very many instances, is undoubtedly so, the fact is, nevertheless, that in the greater number of cases of impaired digestion improperly performed processes of other organs are at the bottom of the evil in failing to properly convert the starchy food partaken of.

The changing of amylaceous food into dextrose and maltose is the beginning of digestion. All will have observed that bread, crackers, or potatoes, not being sweet in themselves, very soon become so when masticated and thoroughly mixed with the saliva in the mouth, and that their taste becomes sweeter the longer this is continued. This sweet taste is due to the conversion of the hydrated starch by the action of the saliva upon it, the saliva containing an enzyme called ptyalin, which, by its presence, splits up the starch into solu-

ble products which I will mention later on, and this splitting-up process of the starchy food even continues after it has left the stomach. Animal foods needing the acids which are found in the stomach are digested there, but acids materially interfere with the action of enzymes which cause the conversion of starch, even destroying such action altogether. For this reason it seems practically incorrect to say that the conversion of starch continues after it leaves the mouth; but nature has provided against a too soon interference of acid, because it is now well understood that acid especially hydrochloric acid, is secreted in the stomach a considerable time after the food has arrived there, and this may be one of the reasons why the converting of starch continues after it has left the mouth.

Since medical science has thoroughly grasped the philosophy of digestion, it has been the aim by artificial means to supply the enzymes which digestion calls for when they do not appear to be present in a sufficient quantity or are secreted in less potent form by the digestive organs. Science has succeeded fairly well in supplying gastric and pancreatic ferments when nature lags behind; but our success has so far been only a very partial one in supplying starch-converting substances, and for this reason a new and seemingly valuable discovery in this direction at once becomes interesting.

That diastase has an identical action with ptyalin upon starch is a fact long known, and for this reason the diastase contained in malt has been employed for this purpose. Diastase is contained to a lesser or greater extent in the different extracts of malt, and in minute quantities also in fermented malt preparations. In the latter the diastatic action, however, is generally totally destroyed by the acids present. Even in the best extract of malt there is only a limited and variable amount of diastase present; and while the extract of malt will continue to play an important rôle as a dietetic agent, its utility as a starch-converting agent will always remain a

limited one. From time to time pure diastase has been offered to the profession, but none has so far proved of a sufficient potency to recommend itself to general use. Great progress in this direction is the discovery of Mr. Takamine, a chemist of no mean ability, who acted as one of the commissioners of Japan at the Cotton Exhibition in New Orleans several years ago. At that time he showed me an extract of malt, as manufactured in Japan, very rich in diastase and nutritive properties, and which I have mentioned in a paper on the diastatic and nutritive properties of malt extracts, published in the December number, 1891, of the *Epitome of Medicine*. In that paper I warned against too great heat in the manufacture of malt extracts, as heat impairs, and is even liable to totally destroy, the diastatic action. The avoiding of all undue heat in preparing diastase may be one of the reasons why the diastase which is now manufactured by Parke, Davis & Co., under Mr. Takamine's discoveries, is so perfect in its action in converting starch into maltose and dextrose. His product is a dry powder similar in appearance to some I received from a reputable German firm years ago, but is vastly superior in potency. Since the receipt of this German preparation I have frequently had occasion to experiment with various diastases, some being named vegetable ptyalin, but in no instance have they come up to the desired standard, and failed to fill the void felt for an enzyme which will accomplish what the enzyme of saliva in a healthy individual does accomplish.

In comparing notes of experiments lately conducted with taka diastase, other available diastases, and different extracts of malt, I find that the claim of the taka diastase that it will convert a hundred times its own weight of starch into a soluble state is well authenticated, for I have succeeded in converting even fifty per cent. more of starch than is claimed for it. Another point in favor of taka diastase above other similar products is the quickness of its action upon starch, for the action is almost instantaneous. To convert one hundred parts of starch into a soluble state by the action of one part of taka diastase, under proper conditions, it

takes only four minutes until neither iodine test nor the microscope can detect unconverted starch. The product of converted starch with Mr. Takamine's taka diastase is to a great extent maltose. Compared with the time required by the best extract of malt to convert starch, this is certainly an excellent showing, for it took the best malt extract between seven and eight minutes to convert its own weight of starch into a soluble state, while with some other extracts of malt it took fifteen, twenty, and thirty minutes to partially accomplish this end. Tests with Fehling's solution to ascertain in the converted starch products the amount of contained sugar therein were equally favorable to taka diastase.

In converting starch into a soluble state by the action of diastase, the rearranging of the molecules of starch is understood to be as follows:

Starch ($C_{12}H_{20}O_{10}$) 10 plus water, H_2O , are first formed into erythro dextrose and maltose.



By the continued action of diastase further hydration of the erythro-dextrose takes place.

The erythro-dextrose further splits up into erythro-dextrous-B and maltose, the ultimate result being a small amount of dextrin (ancho-dextrose) and eight or nine equivalents of maltose. Since Leuch's discovery of the specific starch-converting property of saliva and its ptyaline, we have lacked an agent of sufficient potency to accomplish what good healthy saliva does, and, for the first time, we find in taka diastase a substitute of undoubted worth, which even in the presence of a minute quantity of acid, does not cease to be potent. The ptyaline in saliva is present there in a neutral or weak alkaline state, and for this reason it suggests itself that diastase, being an analogue with the former, acts also at its best in such a state, and is incompatible with acids. I employed in the greater number of my experiments with diastase carefully washed arrow-root,—a perfectly bland and neutral starch; but I found that starches giving a slight acid reaction on blue litmus were equally well converted by taka diastase. In testing diastase as

to its potency, I would recommend that the iodine as well as the copper tests be employed, and that undue employment of heat under all circumstances should be guarded against, as heat, as already mentioned, destroys the action of diastase.

Taka diastase being a dry powder tasteless and of no perceptible odor, can be given in very small bulk, and for this reason I think it will prove itself of value in infant feeding, where it

is desirable to give starch-containing foods, provided said food would easily dissolve and the infant's saliva could be relied upon to perform that function. That the new diastase is destined to become a favorite with the profession I have no doubt, having acquainted myself with its potency in converting starch in a minimum of time into a form ready for absorption by the system, and I think it will be found the very remedy for which we have waited so long.

DIABETES WITH BRONZING OF THE SKIN.

Marie (*Sem. Méd.*, May 22nd, 1895), after reporting a case of *diabète bronzé* ("pigmentary hypertrophic cirrhosis with diabetes mellitus" of Hanol and Chauffard); gives a general description of this rare disease, of which only nine certain cases, all by French observers, and two doubtful ones have been published. (A) Etiology: It appears in the second half of adult life, and is more common in males than females. Cause possibly alcoholism. (B) Onset: Rather sudden, with all the classical signs of diabetes mellitus, together with gastric and respiratory disorders. (C) Symptoms: (a) Those of diabetes mellitus, the polyuria, however, being moderate, while the glycosuria amounts to 150 to 350 g. in the twenty-four hours, but diminishes or disappears towards the fatal end. (b) Abdomen: Distension almost constant, but ascites slight: considerable hypertrophy of liver, which is of wooden hardness and tender. There is no true icterus as a rule, but urine is high colored without containing bile pigments. The superficial abdominal veins are enlarged; the spleen is hypertrophied; digestion is often retarded, and diarrhoea, alternating with constipation, is present usually. (c) Emaciation and enfeeblement rapid. (d) Edema of legs generally present. (e) The cutaneous pigmentation is brown or even grey black, more or less uniform, most marked on the face, extremities, and genital organs, but is absent on the mucous membranes, and no spots are present (difference from Addison's disease). In some cases it has been wanting. (f) Nervous: Loss of

sexual power, absence of knee-jerk and insomnia as in diabetes. (D) Duration: Average 11½ months. The temperature is raised towards the end, and the oedema and ascites may become considerable, and purpura may appear. (E) Morbid Anatomy: (a) Macroscopic: (1) Liver enlarged, dense, and rust-colored, surface generally hobnailed but may be smooth, bile passages normal; (2) intestines, mesentery, and peritoneum of a slate-black color (in author's case also covered with miliary tubercles); (3) spleen, mesenteric and mediastinal glands enlarged, sclerosed, and of a reddish-brown rust color; (4) pancreas sclerosed and rust-colored, duct patent; (5) kidneys and vessels normal; (6) heart usually normal in size or even dilated with flaccid reddish yellow walls, but in author's case it was atrophied; (7) lungs frequently tuberculous. (b) Microscopic: Liver inter- and intra-lobular cirrhosis, with masses of ochre-colored pigment between connective tissue fibres and in hepatic cells, some of which are crowded with pigment and disintegrate. Pancreas cirrhotosed with pigment in connective tissue and parenchyma. In the lymphatic glands the pigment almost obscured their structure; kidneys pigmented to a less degree. The heart in author's case presented pigmentary degeneration of muscular fibres and sclerosis of pigmented fibrous tissue. (F) Pathogeny: The pigment is ferruginous; thus the liver contained, in author's case, 11.3 per thousand of iron (normal amount 0.4 per thousand), and the lymphatic glands 18.5 per thousand (normally a trace only).

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Pregnancy With Unruptured Hymen.

Guérard (*British Medical Journal*) relates three new cases of pregnancy in which the hymen was persistent. In the first and second there was a protracted second stage due to the resistance of the hymen, which was perfect and very elastic. After a crucial incision the fetus was at once delivered, but in one case the child was lost. In the third case the patient appeared to be in the seventh month of her first pregnancy, and suffered from severe pain in the genital tract. Although she had twice been operated on for atresia of the hymen, the vagina was still closed by a firm, impermeable, and tender membrane. This was excised, the pains disappeared and the pregnancy continued and ended naturally. Guérard notes a case of bifenestrated hymen where the openings barely admitted a hair; yet the patient reached the third month of pregnancy, and abortion was induced in a manner which could not be ascertained. In considering these cases, he notes how the alkaline uterine mucus, poured out during orgasm, protects the spermatozoa from destruction by vaginal mucus.

The Pathology of the Pancreas.

It is only within comparatively recent years that any notable additions have been made to our knowledge of the pathology of diseases of the pancreas. A decided impetus was given to the subject by the epoch-making researches of Fitz, who practically established upon a firm clinical basis the symptomatology and diagnosis of acute pancreatitis and allied conditions. Of the etiology of these we practically know nothing, and this line of research affords a field for investigation that promises to yield important and interesting results.

Recent clinical and experimental observations have shown that some lesions of the pancreas are attended with glycosuria, but an even more obscure association is that with the peculiar condition known as fat-necrosis. While this has been observed most commonly in connection with pancreatic disease, it has also been found in some cases in which such disease could not be demonstrated. An interesting contribution to this subject has recently been made by Hildebrand (*Centralblatt für Chirurgie*, 1895, No. 12, p. 297), who, in a series of experimental observations on cats, succeeded in inducing fat-necrosis by ligation of the pancreas or its vessels, and by transplantation of the organ in whole or in part. In two animals the pancreas alone was ligated; in six others ligatures were also applied to all of the veins. Sugar was found in the urine of one of these. In one instance a bit of pancreas, two by three centimeters, was excised from the continuity of the organ and fixed with a suture in the omentum of another animal; and, again, an entire pancreas was treated in the same way. In an-

other experiment a whole pancreas was sacrificed and made to surround a portion of the small intestine. The animals withstood the operations well, but in all the characteristic white areas of fat-necrosis appeared in the peritoneum comparable to that observed in man.—*Med. News*.

The Cure of Epilepsy by Intra-Nasal Treatment.

Sichthoff (*Monatschrift f. Ourenheilkunde*), reports the following interesting cases: (1). Male, æt. 38—Epileptic for 20 years, the attacks becoming more severe and of longer duration, starting in with complete unconsciousness, biting of the tongue and tonic convulsions. S. found hypertrophy of the middle and lower turbinateds, and a ridge on the septum. The wife was given a ten per cent. solution of cocaine and by applying this within the nose with a brush she was able to cut short the attacks without fail. S. then used the galvanocantery within the nose with the result that for the last two years the patient has had no return of the epilepsy. (2). Male, æt. 33—For years mild attacks of epilepsy; in 1892 had severe seizure which began with the sensation of a horrible smell, this lasting for several days after the seizure. Since then had an attack every three or five weeks, always beginning with a nasal aura. The right side of the nose was found to be occluded by hypertrophy of the membrane. When cocaine was applied to this the expression of patient's face changed instantly and he asserted that the stench was gone. The right lower turbinated was adherent to the septum throughout its length, and on the left side also there was similar adhesion. To rectify these conditions took considerable time, but the epilepsy has not returned, though at times there is an indication of the old sensation of stench.

Early Diagnosis of Diabetes.

Von Noorden (*Centralbl. f. inn. Med.*, May 25th, 1895) draws attention to the early diagnosis of diabetes since treatment in the early stages offers considerable hopes of recovery. Treatment should be begun before the diagnosis is made by the discovery of sugar in the urine. The author has investigated the diagnostic value of alimentary glycosuria in such cases. In 15 adipose individuals no trace of sugar could be found when food containing much carbohydrate material was administered, but when pure grape sugar was taken glycosuria was noted in 4 cases. Two of these 4 cases have since developed diabetes, and the two other cases have not been under observation long enough. If subsequent investigation confirms these observations the test with grape sugar will be of considerable diagnostic value. It should be tried in the adipose and gouty, especially when a family history of diabetes is present. The author looks upon adiposity as frequently an early symptom of diabetes.

A Solitary Worm in the Urethra.

The Finish Journal *Duodecim* recently published the following observation of a man who, for several years, had complained of pain in the visceral and perineal regions. Doctor Spooft, after the application of an opiate suppository, in the rectum, succeeded in extracting from the urethra a tenia whose head presented first.

This odd case is not unique. Mr. S. Jones relates having seen, eight years ago, at Guy's Hospital, a fragment of tenia solium eight centimetres ($3\frac{1}{4}$ inches) long coming from the meatus urinaris of a patient in Mr. Durham's service; the segment of the "ribboned" worm had, doubtless, reached the urethra by passing through a fistulous opening, which in the patient communicated between the rectum and neck of the bladder.—*Le Bulletin Medical*.

Malacine in Rheumatism, by Montagnon and Ducher.

The authors call attention to a new product, malacine (Mahaxos), introduced into therapeutics, by Dr. Jaquet (of Bale).

This product is obtained by the action of salicylic aldehyde, aromatic oxyaldehyde, on parphenetidine, ethylic ether of para-amido-phenal.

The product thus obtained, malacine, is in small silky needles of lemon-yellow color. They are very brilliant, insoluble in water, but soluble in ether, chloroform, hot alcohol, etc.

The authors advise that from 4 to 10 grammes of malacine be administered daily, beginning with a dose of 1 gramme. It is best given in cachet: 50 centigrammes or 1 gramme every three hours, according to the cases.

The medicament is split up in the stomach and eliminated under form of salicyluric acid, as shown by the analyses made by the authors.

From a clinical point of view, malacine is not superior to sodic salicylate, but has the advantage of producing neither digestive trouble nor burning in the stomach, nor buzzing in the ears, even in large doses of 10 grammes, per diem, and for several consecutive days.—*L'Annuaire de Therapeutique*.

Heart Failure.

Loomis (*Internat. Med. Mag.*) divides all cases of heart failure into three classes: (1) Those in which the heart has for a long time been called upon to perform an abnormal amount of work, as in valvular or arterial disease. (2) Those in which obstructive changes in the coronary arteries markedly diminish the nutritive supply of the cardiac muscles. (3) Those in which toxic influences act directly upon the nutrition of the cardiac muscles, or so interfere with the cardiac nerve supply as to lessen cardiac resistance. The cases in the first class are the most numerous and easily recognized. The other organs than the heart should be carefully examined for morbid changes, and the resisting power of the heart carefully estimated. In this manner a fatal heart syncope may often be prevented by limiting the amount of heart strain. The second class of cases, fibroid disease of the heart, may be recognized by a rapid, feeble and irregular pulse, a diffuse, feeble cardiac impulse, weak but sharp heart sounds, the first closely resembling the second in

tone and duration. Advanced cases have precordial anguish, with a tendency to syncope. Digitalis and other heart tonics fail to restore the rhythm and often make it worse. In these cases the danger of sudden cardiac failure is so great that all acute diseases become dangerous, and severe heart-strain is contra-indicated. In cases of toxic infection, signs of heart weakness should be watched for, and alcohol, strychnine and other heart tonics administered early, in order to ward off, if possible, a fatal syncope.—*Med. Times*.

Biliary Cirrhosis in Children.

Gilbert and Fournier (*Rev. des Mal. de l'Enf.*, July, 1895) report 7 cases of biliary cirrhosis in children, or commencing in childhood, and presenting all the symptoms observed in the adult, but with the addition in many cases, of hypertrophy of the spleen, so conspicuous that in those cases in which the liver is not very much enlarged—and such enlargement is in children often not great—the true nature of the disorder may be easily mistaken. They believe this enlargement of the spleen in association with biliary cirrhosis to be peculiar to cases commencing in childhood. A further peculiarity of the disease, as observed in children, is the frequency with which clubbing of the fingers may be observed. In some instances the ends of the femur and tibia were enlarged also. Evidence of the influence of the disease on the general nutrition is to be detected also in the retarded growth and the backward appearance of the sufferers.

Morphinomania Cured by Gradually Increasing Doses of Posphate of Soda.

M. J. Luys reports the case of Dr. X., who had been accustomed to employ about seven grains of morphia daily. Small doses of sodium phosphate were given subcutaneously (with glycerine and water), and as they were gradually increased the morphia was progressively diminished. In two months the morphia was discontinued entirely, and then the doses of sodium phosphate were progressively diminished, and finally stopped altogether in two weeks more. There remained no desire for the morphia at all.—*American Practitioner and News*.

Calf's Pancreas in Pancreatic Diabetes.

At the French Congress of Internal Medicine, recently held at Bordeaux (*Sem. Méd.*, August 21st), Ausset stated that he had given to dogs from which the pancreas had been completely extirpated—as proved by *post-mortem* examination—calf's pancreas lightly cooked and mixed with the animals' food. The glycosuria caused by the operation always disappeared as soon as the treatment was begun, and this effect lasted as long as the administration of pancreas was continued. The treatment was tried in a diabetic man passing 38 g. of sugar in the twenty-four hours, with more than double the normal elimination of chlorides and phosphates, loss of strength, etc. On the second day of the treatment the amount of sugar fell to 4 g. and the quantity of salts eliminated became normal. On the ninth day the sugar had wholly disappeared and the urine remained normal for more than a month.

Sclerodermia.

Friedhaim (*Munch. med. Woch.*, May 7th, 1895) relates a case of extensive sclerodermia in a girl aged 21. The diagnosis was made certain by the sclerosis, atrophy, and pigmentation of the skin and by the absence of sensory disturbances. A case related by Kaposi and Singer, in which a partial atrophy of the thyroid gland was present and the smallness of the same gland in his patient led the author to try the thyroid treatment. No beneficial action was noted, and the treatment had to be discontinued owing to headache, sleeplessness. Improvement was obtained by massage. The case was complicated by cutaneous hemorrhages—a very uncommon event in sclerodermia. That the disease is a tropho-neurosis is supported by the disturbance in secretion and the muscular atrophy (such as facial hemiatrophy) sometimes seen. Sclerodermia affects women more than men and is uncommon under 20 years of age. Sensation to temperature and touch was unaffected in this case, but there was slight hyperesthesia to the electric current. As regards treatment, massage, properly applied along with numerous baths and lubrication of the skin, has given the author the best results in these cases. The improvement has fallen short of cure. The palliative action of electrical treatment is at times considerable.

SURGERY.

Cocaine Injections in Place of Castration for Enlarged Prostate.

I notice an article in the *Medical Record* entitled "Warning Against Castration for Prostatic Enlargement." For many years the difficulty of enlarged prostate has been to me one of considerable importance. Castration is probably the least desirable operation in operative surgery, not because of the difficulties or dangers present in the removal of the testicles, but because of the destruction of the virility of the individual concerned.

There is an old saying: "any port in a storm," and while in search for a remedy short of absolute castration I have devised a method that so far has succeeded in two cases. My method is to inject cocaine directly into the testicle twice per week for about two months. There is considerable absorption, spermatozoa cease to be produced in about six weeks; the patient gets immediate relief from the distressing symptoms of prostatitis and enlargement, the gland gradually shrinks to its normal size, and the finale of the case is recovery, with the power of copulation, but absolute cessation of the production of spermatozoa. Is not this better than castration?—S. E. CULLY, M.D., in *N. Y. Med. Record*.

Papain for Tapeworm.

Roberts Bartholow (*Med. News*) reports a case in which, after a failure of the usual remedies for tapeworm, a parasite twenty-five feet in length became dislodged and was passed after the use of papain, in ten grain doses, three times a day after meals. The worm had not undergone solution, but Bartholow thinks the drug had exerted a toxic influence upon it.

Burns Due to Intense Cold.

M. Raoul Pictet has described the "cold burns" experienced by himself and his assistants during investigations at low temperatures. In some cases the skin is first red, then blue, and subsequently the area of the injured spot extends to nearly double what it was originally. There is a painful itching sensation in the surrounding tissues, as well as at the affected spot, and healing usually takes five or six weeks. In more serious cases the skin rapidly becomes detached, and there is a long and stubborn suppuration, the wound remaining open for more than six months in one instance after a drop of liquid air had fallen on the hand.—*Boston Med. and Surg. Journal*.

Subcutaneous Injection of Oil in Cases of Stiffened Joints.

In two instances of stiffened joints, where the inability to move the limb has appeared to arise from rigidity of the tendons and muscular sheaths, I have injected, subcutaneously, olive oil into the structures, and with some success I find that a fluid drachm of oil can be injected around the knee-joint without causing any after inflammation or discomfort. In one instance where the elbow was operated on in this way, the patient, a young woman, obtained for the first time some degree of movement after six months' entire fixation from rigidity.—SIR B. W. RICHARDSON, in the *Aesclepiad*.

A New Treatment for Prostatic Hypertrophy.

It is stated that at the recent German Congress of Internal Medicine, Reinert, of Tubingen, reported three cases of prostatic hypertrophy which had been considerably relieved by the ingestion of a preparation of the prostate glands of animals.—*Boston Medical and Surgical Journal*.

Laparotomy in Tuberculous Peritonitis.

Nannotti and Baciocchi (*Gaz. degli Osped.*, No. 57, 1895), as the result of an experimental study of this subject, conclude that laparotomy undoubtedly has a beneficial influence upon tuberculous peritonitis, even in the lower animals. In certain cases in which laparotomy succeeds it should be repeated if necessary. The involution of tuberculous nodules after laparotomy is, as a rule, rapid, but there generally remain some foci which disappear much more slowly, so that one ought to be cautious in speaking of absolute cure. The beneficial effect of laparotomy does not seem to be materially increased by washing out the peritoneal cavity with sterilized water or antiseptic solutions. In addition to the immediately beneficial effect, laparotomy may hinder the secondary localization of tuberculosis. The operation sets up an inflammatory reaction of the peritoneum, accompanied by a noteworthy increase in its absorbing power, phagocytosis, degeneration of the cellular elements, connective tissue formation, and vascularization of the tuberculous nodules, with successive fibrous transformation. The authors recommend comparatively early operation in man, not only for its immediately good effect, but to prevent further spreading.